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## Royal Institution of Cornwall.

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SPRING MEETING, 1886.

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The Spring Meeting of the Royal Institution of Cornwall was held on June 4th at the Rooms of the Institution. In the absence, through illness, of the President, the Rev. W. Iago, B.A., the chair was taken by Mr. H. M. Jeffery, F.R.S., Vice-President; but no formal address was delivered.

In taking the chair, Mr. Jeffery said: We all deeply regret the enforced absence of the President, the Rev. W. Iago, B.A., Correspondent to the Society of Antiquaries for Cornwall, from whom we had anticipated a Presidential Address of interest and permanent value. Early in the year, when our President-elect, he delivered at Plymouth an able review of Cornish Archæology, embracing its newest developments, so that we might then have anticipated that he would further enrich our own proceedings, as he has enriched them in the past. I desire to express the warm sympathy of this meeting with our President; hopes for his speedy recovery, and re-appearance in these rooms.

The following obituary notices were read from the chair:—

RICHARD EDMONDS.

Amongst our members that have passed away must be numbered Richard Edmonds, seismologist and antiquary, who in early life practised as a solicitor in Penzance, and died at Plymouth, in his 65th year. He closely studied the extraordi-



nary agitations of the sea and earthquake shocks, and published the results of his investigations in the *Edinburgh New Philosophical Journal*, the *British Association Reports*, and our own *Transactions of the Royal Institution of Cornwall*.

In 1862 Mr. Edmonds published a collection of his papers, entitled "The Land's End District; its Antiquities, Natural History, Natural Phenomena, and Scenery." Amongst his contributions to our *Transactions* are the following memoirs:—

"Remarkable Periodicities in Atmospheric and other Phenomena," 1848.

"Caves, Ancient British, near Penzance," 1857.

"Whirlwind near Penzance," 1860.

"Beehive Cave at Chapel Euny and Chyoyster," 1861.

"Barrows in Constantine and Wendron," 1862.

"Ancient Cornish Tin Trade," 1863.

"St. Michael's Mount and the Phœnicians," 1863.

"Tin Trade—Ancient Cornish," 1863.

#### CHARLES WILLIAM PEACH.

At the ripe age of 86 this enthusiastic naturalist has passed away. Born in Northamptonshire, he entered the coastguard service, and in the intervals of his duties observed the plants, insects, birds, and fishes he met with in the sea and on land.

He was ever attentive to ascertain new species and genera. In particular, he increased the store of knowledge of sponges in our seas, of medusæ, echinoderms, mollusks and fishes. He was a keen observer, rather than a trained naturalist; one who placed all his stores of knowledge in the hands of others, publishing little himself.

In Palæontology he made successful researches, first detecting fossil fishes in the Devonian rocks, and in the north of Scotland he discovered a series of fossils in the limestone formations, which enabled Murchison and others to fix the geological age of the rocks of the N.W. Highlands.

After retiring from the public service, he continued to prosecute his researches in the carboniferous rocks near Edinburgh. In 1875 the Royal Society of Edinburgh awarded him the Neill Gold Medal for his services to Natural History, thus honouring his long and useful scientific career.

Amongst his papers may be mentioned :

“ Fossils found in the South Coast,” 1841.

“ Notices of Crustaceans,” 1844.

“ Additions to the list of Cornish Zoophytes and Observations on others,” 1848.

“ Observations on the Luminosity of the sea,” 1849.

“ On the *Corynactis Viridis* (Zoophyte) of Alluna,” 1852.

“ Metamorphosis in a Zoophyte-like Animal,” 1855.

“ *Lamellaria tentaculata*, nidus of,” 1857.

“ Harvest Mouse,” 1857.

“ Echinodermata, peculiar Forms of Spines in,” 1858.

“ *Pontobdella muricata*, nidus and young of,” 1860.

“ *Ophiocoma*, peculiar Spines on,” 1862.

“ On new British Naked-eyed Medusæ (Edinburgh) ” 1867.

“ A new British *Eschara*,” 1868.

The Institution has been deeply indebted to Mr. Dunkin, the Ex-President of the R.A.S., for a set of the Memoirs of the Royal Astronomical Society—a grant rarely accorded to any Institution, since their Memoirs are principally reserved for foreign observatories; and to Mr. Pearce for a set of Photographs of the scenery of Colorado, adding another to his munificent donations to this Institution.

The following list of Presents was read :

### ADDITIONS TO THE LIBRARY.

Transactions of the Bristol and Gloucestershire } Archæological Society, Vol. IX, Parts 1 and 2 ...	The Society, 2nd Jan., 1886.
Notes on the Wills in the Great Orphan Book ...	Ditto.
Proceedings of the Birmingham Philosophical Society, } Vol. II, Part 1 ...	The Society, 5th April, 1886.
Proceedings of the Bath Natural History and } Antiquarian Field Club, Vol. VI, No. 1 ...	The Society, 1st May, 1886.
The Visitations of Cornwall, Parts 13 and 14, by } Col. Vivian ...	The Author. 2nd Feb., 1886.
Journal of the Cambrian Archæological Association, } Vol. 2, No. 8, 5th series ...	The Association, 18th Feb., 1886.
The Camera, Vol. 1, No. 1 ...	{ The Publishers, 22nd May, 1886.
Transactions of the Royal Geological Society of } Cornwall, Vol. 10, Part 8... ..	The Society, 20th Mar., 1886.

Transactions of the Mining Association and Institute of Cornwall, Vol. 1, Part 2	...	...	...	The Association, 31st May, 1886.
The Gododen of Aneurin Gwawdrydd	...	...	...	Cymmrodorian Society, 12th May, 1886.
Canadian Gazette	...	...	...	The Publishers, weekly.
Royal Cornwall Polytechnic Society, 55th Annual Report	...	...	...	The Society, 4th June, 1886.
Royal Astronomical Society, President's (Edwin Dunkin, F.R.S.) Address, 1886	...	...	...	The President, 25th March, 1886.
Philosophy of History and Social Evolution, by Dr. Doherty	...	...	...	The Author, 2nd June, 1886.
L'homme et la Nature, by Dr. Doherty	...	...	...	Ditto.
Proceedings of the Royal Physical Society of Edinburgh, Session 1884-5	...	...	...	The Society, 4th Dec., 1885.
Proceedings of the Geologists' Association, No. 4, November, 1885	...	...	...	The Association, 18th Feb., 1886.
Proceedings of the Natural History Society of Glasgow, Vol. I, Part 2, New Series	...	...	...	The Society, 12th May, 1886.
Do. Do. Index to Vols. 1 to 5, 1851-83.	...	...	...	Ditto.
Proceedings of the Royal Irish Academy, Science, Ser. 2, Vol. IV, No. 3, January, 1885	...	...	...	The Academy, 3rd Dec., 1885.
Ditto Ditto, Ser. 2, Vol. IV, No. 4, July, 1885...	...	...	...	Ditto.
Ditto Ditto, Polite Literature and Antiquities Sec. 2, Vol. 2, No. 6, January, 1885	...	...	...	Ditto.
Royal Irish Academy—Todd Lecture Series, Vol. 2, Part 1, Irish Lexicography	...	...	...	Ditto.
Transactions of the Royal Irish Academy Science, Vol. 28, Part 17 (Sept., 1884)	...	...	...	Ditto.
Ditto Ditto, Vol. 28, Part 18 (March, 1885)	...	...	...	Ditto.
Ditto Ditto, Vol. 28, Part 19 (July, 1885)	...	...	...	Ditto.
Ditto Ditto, Vol. 28, Part 20 (July, 1885)	...	...	...	Ditto.
Journal of the Royal Geological Society of Ireland, Vol. 6, Part, 3, New Series	...	...	...	Ditto, 1st Feb., 1886.
Journal of the Royal Historical and Archaeological Association of Ireland, Vol. 6, No. 60, 4th Ser., (Oct. 1884)	...	...	...	Ditto, Feb. 1st, 1886.
Ditto Ditto, Vol. 7, Nos. 61, 62. & 63, 4th Series (July, 1885)	...	...	...	Ditto, Feb. 18th, 1886.
Mathematical Tracts, by Henry M. Jeffery, F.R.S., 1863-69.	...	...	...	The Author, 28th April, 1886.
Proceedings of the Society of Antiquaries of London, Vol. X, No. 3	...	...	...	The Society, 12th March, 1886.
Journal of the Anthropological Institute, Vol. 15, No. 3 Feb., 1886, No. 4, May 1886	...	...	...	The Institute, 12th May, 1886.
Monthly Notices of the Royal Astronomical Society	...	...	...	The Society, monthly.
Memoirs of the Royal Astronomical Society, Vols. 5 to 48 inclusive	...	...	...	Ditto.
Journal of the Society of Arts	...	...	...	The Society, weekly.

Proceedings of the Liverpool Naturalists' Field Club, for 1883-84 ... ..	The Club, 26th Feb., 1886.
Collections, Historical and Archæological. relating to Montgomeryshire (Powys Land Club) Vols. 18 and 19, Parts 1 and 3 ... ..	The Powys Land Club, 5th April, 1886.
Medical Press and Circular ... ..	The Publishers, 13th Jan., 1886.
The Provincial Medical Directory Journal ... ..	Ditto, 1st Jan., 1886.
Transactions of the Manchester Geological Society, Vol. 18, Parts 12, 13, 14, 15, 16, 17, 18, and 19. ... ..	The Society, 28th May, 1886.
Transactions of the North of England Institute of Mining and Mechanical Engineers, Vol. 35, Parts 1 and 2 ... ..	The Institute, 8th April, 1886.
Proceedings of the Academy of Natural Sciences of Philadelphia, Part 3 (Aug. to Dec., 1885) ... ..	The Academy, 18th May, 1886.
Société Géologique de St. Petersburg, Nos. 8, 9, and 10 ... ..	The Russian Government, 20th Mar., 1886.
Die Fauna des Untern Devon am West-Abhange des Urals ... ..	Ditto, 30th Dec., 1885.
Memoires du Comité Géologique, Vol. 3, No. 1 ... ..	Ditto.
Journal of the British and American Archæological Society of Rome, Vol. 1, No. 1 ... ..	The Society, 28th May, 1886.
Quarterly Return of Marriages, Births, and Deaths in England ... ..	Quarterly.

FROM THE GOVERNMENT OF THE UNITED STATES OF AMERICA.

United States Geological Survey, 4th Annual Report, 1882-83 ... ..	American Government, 17th Dec., 1885.
Ditto Ditto, 5th Annual Report, 1883-84 ... ..	Ditto, 20th Mar., 1886.
Monthly Weather Review, May, June, July, Aug., Sept., Oct., Nov., and Dec., 1885 ... ..	Ditto, 8th May, 1886.
Summary and Review of International Meteorological Observations, Aug., Sep., Oct., Nov., and Dec., 1884 ... ..	Ditto, 8th May, 1886.
Bulletin of the U. S. A. Geological Survey, Nos. 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, and 23... ..	Ditto, 18th May, 1886.
Bulletin of International Meteorology, May, June, and July, 1884. ... ..	Ditto, 23rd Dec., 1885.
Annual Report of the Comptroller of the Currency, December 1st, 1885 ... ..	Ditto, 20th March, 1886.
Annales des K. K. Naturhistorischen Hofmuseums: Wien, Band Nos. 1 and 2, Jahresbericht, 1885 ... ..	Ditto, 26th Feb., 1886.
Civil and Mechanical Engineers' Society—President's Address, 1885, H. Michell Whitley, F.G.S. ... ..	The Author, 22nd March, 1886.
Proceedings of the Zoological Society of London, Part 4, April 1, 1886. ... ..	The Society, 13th April, 1886.
British Association Reports for 1882, 1883, and 1884 ... ..	H. M. Jeffery, F.R.S., On Loan.

BOOKS PURCHASED.

Western Antiquary.  
Rainfall Magazine

Quarterly Journal of the Geological Society of London.

The Ray Society.

Palaontographical Society

Journal of the Mineralogical Society.

Nature.

Episcopal Register, Diocese of Exeter, by Rev. Preb. } 5th April, 1886.  
Hingeston Randolph ... ..

Blight's Churches of West Cornwall ... .. 23rd April, 1886.

#### PRESENTS TO THE MUSEUM.

Vanadinite, from the Mammoth Mine, Tuscon, Arizona, } Presented by  
U.S.A. ; Conicholcite from the American Eagle } Mr. R. Pearce, F.G.S.,  
Mine, Utah, U.S.A. ... .. } Denver. Colorado.

Pumice Stones picked up floating on the sea, ... } Presented by  
Mr. Howard Fox.

A large Inscribed Stone from Iquique, S. America, } Mr. Robt. Harvey. C.E.  
evidently describing the journey of one of the Tribes }

The following Papers were then read :—

“Morphology and Development of the Anther”—J. Snell.

“Notes on some points connected with the early history of the Nautical Almanac”—E. Dunkin, F.R.S.

“What traces are there left of the old language?”—Rev. A. H. Malan.

“Flint Flakes and Small Stone Implements in Cornwall”—T. Brent, F.S.A.

“The Apple Tree”—Thos. Cragoe, F.R.G.S.

“The destruction of Arwenack during the Civil War”—H. Michell Whitley, F.G.S.

“The early Acceptation of the name of Falmouth”—H. M. Jeffery, F.R.S.

Two maps, (1) of the river Fal and its tributaries, and (2) of the shores of Falmouth Harbour, made in the reign of Queen Elizabeth. Exhibited and described by H. M. Jeffery, F.R.S., emendations in the Itinerary of William of Worcester which refer to Falmouth Haven and Glasney College.

“The Igneous Rocks of S.E. Cornwall”—R. N. Worth, F.G.S.

“Early Christian Remains in Cornwall”—Rev. W. S. Lach-Szyrma, M.A.

“The Mother Lode of California”—J. H. Collins, F.G.S.

Votes of thanks to the Authors of Papers, to the Donors of gifts, to the Museum and Library, and to the Chairman were passed unanimously.

## NOTES ON SOME POINTS CONNECTED WITH THE EARLY HISTORY OF THE "NAUTICAL ALMANAC."

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One of the most valuable results of the progress of astronomical research in the middle of the last century, was the institution of the "Nautical Almanac," a work that has contributed much more than any other ephemeris towards the practical development of the sciences of astronomy, geography, and navigation, and which, in its modern and improved form, still continues the honoured *vade mecum* of the astronomer, the explorer, and the mariner of the present day. It has occurred to me that it may be appropriate to record in the Journal of the Royal Institution of Cornwall,—as a slight contribution to the scientific history of the county—a few personal notes hitherto unpublished, chiefly relating to the association of a well-known Cornish "worthy" with the compilation of the early volumes of the first series of that work; and at the same time to point out an important error in some of our county histories, concerning the date and object of his temporary residence at the Royal Observatory in 1769.

As our national ephemeris has now become the necessary companion, or handbook, of sailors of all nations, as well as of astronomers, any information not generally known, in relation to its early history, cannot fail to be appreciated by men of science, especially in Cornwall, in whose towns and villages a very considerable portion of the calculations were made between the years 1775 and 1831. In the latter year the "Nautical Almanac" office, as it exists at present, was permanently established in London, in which all the calculations are now made.\*

It must be understood that the publication of a nautical ephemeris of any real scientific value was not possible before the middle of the last century, as even at that time very imperfect materials were in existence from which any reliable astronomical predictions could be made, especially of stated daily positions of the moon. It is true that observations of our

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\* The "Nautical Almanac Office" is now attached to the Civil Department of the Navy, and the computers are recognised members of the Civil Service."

satellite had been made before 1740 by Dr. Halley with the mural quadrant at the Royal Observatory, and that lunar tables had been formed by him and others; but it was not till after the publication in 1752 of his astronomical tables for computing the places of the sun and moon, prepared by him before he became Astronomer Royal in 1720, that the residual errors, determined from a comparison of these lunar tables with the Greenwich meridional observations of the moon, made between 1722 and 1739, were found to be far too great for the tables to be of much practical value for the determination of the longitude at sea, though they were in advance of others that had preceded them. It is probable, therefore, that the "Nautical Almanac" would not have been established even in 1767, had not more accurate tables been constructed by Prof. Mayer, of Göttingen, founded on the more recent observations. Fortunately, in 1755, Prof. Mayer transmitted his tables in manuscript to Dr. Bradley, who deemed them to be so accurate that, by using the calculated places of the moon, they might serve in finding the longitude at sea within half a degree of the truth, and generally much nearer. After the death of Mayer in 1762, these manuscript tables were placed in the hands of Dr. Maskelyne, who also considered them sufficiently accurate for general nautical purposes, and by him they were laid before the Board of Longitude as a work of both scientific and national importance.\*

Before, however, the tables of Mayer could be made practically available, even when printed, it was necessary that some means should be found to obviate the difficulty that would be experienced at sea on account of the intricate calculations required to obtain accurate tabular places of the sun and moon,

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\*The "Board of Longitude" was formed by the Government for the encouragement of nautical science, and especially of the problem of finding the longitude at sea, by instituting rewards to such person or persons as shall discover a method for finding the same, or shall make useful discoveries in navigation. The "Nautical Almanac" owes its existence to a memorial presented to the Commissioners of Longitude by Dr. Maskelyne, on February 9, 1765, in which he stated many facts and experiments to prove the utility of determining the longitude at sea by the lunar method. On his recommendation the Board resolved that an application should be made to Government to grant a reward to the representatives of Mayer for his tables; and "also for power to give a reward to persons to compile a nautical ephemeris, and for authority to print the same, when compiled, in order to make the said lunar tables of general utility."

an operation that the most scientific navigator could hardly be expected to undertake.

To remove this difficulty, Dr. Maskelyne proposed to the Board of Longitude that the positions of the sun for noon, and of the moon for noon and midnight, should be calculated for each day by Mayer's tables, and that these positions, with other astronomical information useful to the mariner, should be incorporated into a "Nautical Almanac," appearing one or more years in advance. Dr. Maskelyne, who had just been appointed Astronomer Royal, undertook the responsibility of its preparation, and he continued its superintendent till his death in 1811. The first Almanac was published in 1766 for the following year, in the preface of which he remarks that "the difficulty and length of the necessary calculations seemed the only obstacles to hinder Mayer's tables from becoming of general use; to remove which this ephemeris was made; the mariner being hereby relieved from the necessity of calculating the moon's place from the tables, and afterwards computing the distance to seconds by logarithms, which are the principal and only very delicate part of the calendar; so that the finding the longitude by the help of the ephemeris is now in a manner reduced to the computation of the time, an operation equal to that of an azimuth, and the correction of the distance on account of refraction and parallax."

By these tables of Mayer, the power of calculating comparatively accurate positions of the sun and moon was much facilitated, and so important was this considered by the Astronomer Royal and the Board of Longitude, that, on the recommendation of the latter, an Act of Parliament was passed empowering the Government to award the munificent gratuity of £3000 to Mayer's widow, and £300 to Euler, who had furnished the theorems made use of by Mayer in the construction of the theory. These tables were published at the expense of the British Government in 1770, and a new edition, improved by Charles Mason, appeared in 1787.\*

In the preparation of the initiatory volume of the "Nautical Almanac" for 1767, several persons were necessarily employed on the calculations, most of which was computed in duplicate by

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\* Copies of both of these editions, formerly belonging to the Rev. Malachy Hitchins, are in my possession.



two separate persons, and examined by a third. As the computers were under the direct supervision of Dr. Maskelyne, the first volumes were probably calculated within the walls of the Royal Observatory, but I can find no record of these early computations. One of the computers, as stated in Davies Gilbert's "Parochial History of Cornwall," and other histories, was the distinguished Cornishman, Malachy Hitchins, afterwards vicar of St. Hilary in 1775, and of Gwinear in 1785.\* How long he resided at Greenwich I cannot ascertain, but I believe it was only for a short period in 1766 and 1767, till he became fully acquainted with the Astronomer Royal's plans for carrying on the computations.† For more than forty years, however, he continued to be the able coadjutor of Dr. Maskelyne as the comparer of the "Nautical Almanac," and the confidential correspondent on many matters connected with its administration, though his name and services do not appear to have been acknowledged in the prefaces of the various Almanacs.

There can be no doubt that Dr. Maskelyne had a very favourable opinion of Malachy Hitchins as a painstaking calculator, for though he was only about 25 or 26 years of age when he became one of the early computers of the Almanac, he was in a few years entrusted with the far more responsible duty of comparer of the calculations performed by other computers at their private residences in various parts of the country. As the comparer, therefore, all the calculations were sent to Mr. Hitchins for revision. If the corresponding portions of the work calculated by different computers were found to be in agreement, they were passed as correct; but if not, then it was the duty of Mr. Hitchins to discover in which computer's work

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\* Both these benefices were retained by Mr. Hitchins till his death, on March 28th, 1809.

† In the early months of 1769 Mr. Hitchins was evidently not residing at Greenwich, as Dr. Maskelyne has stated that he came to the Observatory in that year *specially* to assist in the observations about the time of the transit of Venus. His family is believed to have generally resided in Devonshire, both before and after his introduction to Dr. Maskelyne, sometime at or near Exeter, till his institution to the Vicarage of St. Hilary, on November 6th, 1775, on the death of the Rev. John Penneck. In January, 1764, Mr. Hitchins married a Miss Hawkin, at Buckland-Brewer, near Bideford (not Hawkins or Hocking as given respectively in the "Bibliotheca Cornubiensis" and Lake's "Parochial History,") by whom he had four sons and one daughter.

the error lay. When finally satisfied as to the accuracy of the calculations, they were forwarded by him to Dr. Maskelyne in a fit and proper state for the press. It seems almost incredible, in this present age of rapid communication, that our recollections can be carried back to a time when heavy forms of calculations had to be transmitted, in some cases, several hundred miles for verification, and that this system should have continued during so long a period, especially in the epoch of slow travelling and expensive postage. Probably Mr. Hitchins endeavoured to avoid this inconvenience as much as possible; hence the reason why so many Cornishmen were employed on the first series of the work, for doubtless his influence was sufficient to induce Dr. Maskelyne to permit him to engage several computers from his own neighbourhood. Sometime about the year 1804 my father was introduced to Mr. Hitchins by that eminent scientific Cornishman, Davies Gilbert, F.R.S.,\* who had opportunities at St. Erth of noticing his mathematical acquirements. This introduction led to his appointment by Dr. Maskelyne as one of the computers of the "Nautical Almanac"; and on taking up his residence at St. Hilary, he became the confidential companion and assistant of Mr. Hitchins. On the death of that gentleman in 1809, the computations were thrown into considerable confusion, as it was not easy to find a properly qualified person immediately to undertake the important office of comparer. In consequence of this, many additional duties devolved, for a time, on my father, at the request of Dr. Maskelyne, with whom, and afterwards with Mr. Pond, F.R.S., Astronomer Royal, and Dr. Thomas Young, F.R.S., who in 1818 succeeded to the superintendence of the Almanac, he continued to carry on a direct official correspondence. My father, who was generally responsible for the preparation of five months of the Almanac, from May to September, resided several years at St. Hilary, but in the year 1813 or 1814 he removed to Truro.

From my early recollections of my father during the later years of his residence in Cornwall, I can, even at this distant

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\* Mr. Davies Gilbert succeeded Sir Humphry Davy as President of the Royal Society, on Nov. 6th, 1827. He was in 1820 one of the original Fellows of the Royal Astronomical Society, and filled the office of Vice-President, at intervals, from its foundation till his death on Dec. 24th, 1839. He was also M.P. for Helston, 1804-6, and for Bodmin, from 1806 to 1832

time, fully remember many of the inconveniences that he, and probably also all the computers, experienced in consequence of their scattered residences. These were in all parts of the country. About the year 1828, up to the time when the office was established in London in 1831, I find that about six computers besides the comparer were employed,—at Arbroath, N.B., Cornwall (3),\* London, Ludlow, and the Comparer at Tideswell. When a difficulty arose requiring a reference to the superintendent or comparer, weeks and sometimes months elapsed before an answer could be obtained; and usually the computations meanwhile remained at a standstill. These delays were of frequent occurrence, particularly in the winter months.

From an examination of the Minute Books and other records of the now extinct Board of Longitude, preserved at the Royal Observatory, I have found several interesting references to the administration, or business matters, relating to the computers, some of which clearly show that scientific work in those days, however valuable it may have been to the nation, was not likely to lead the unfortunate computers to fame or fortune. Indeed there are numerous evidences preserved in these MSS. from which may be inferred that a general dissatisfaction existed among the computers in consequence of the irregular periods of payment of their moderate stipends. This neglect on the part of the Board, especially after its Secretary had the superintendence of the Almanac, was evidently a source of great anxiety to them, as the arrears occasionally extended over two years before a complete settlement could be obtained. In addition to these untoward delays in the payment of their stipends, the computers felt no certainty in the permanence of their employment, and as a consequence, many of them were compelled to undertake other occupations to obtain the means of livelihood. Even Malachy Hitchins was deeply concerned at one time about this absence of permanency, as in 1793 there appeared to be some prospect of his losing his position as comparer altogether, or at any rate for several years. This arose from the circumstance, that, owing to the advanced state of the computations, the Board of Longitude

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\* The three Cornishmen were Mr. William Dunkin, at Truro; Mr. Nicholas James, at St. Hilary; and Mr. Richard Martyn, at St. Mabyn. Of these, my father alone was transferred to the London office in 1832.

had under their consideration a proposal to discharge the computers, and to suspend all the calculations of the "Nautical Almanac," on the grounds that as the Almanacs were then computed to the end of 1804, or ten years in advance, it would be important to include in the volumes after 1804 any improvements that might in the meantime be made in the solar or lunar tables from which the Almanac was computed. It was ultimately resolved by the Board to suspend the calculations during the next five years. The wisdom of this resolution, in a scientific point of view, was manifest to the majority of the members of the Board, who expected that, in the interval of suspension, some progress would certainly be made in the construction of improved tables, and thus a more accurate exhibition of the tabular places of the sun and moon might be given in the Almanacs for 1805 and subsequent years.

This resolution naturally created a great consternation among the computers. Memorials were accordingly submitted to the Board of Longitude from Mr. Hitchins and others, two of whom asserted that they had little or no means of living. One, a Mr. Henry Andrews, stated that "a total discontinuance of the calculations, and at the same time make no compensation for the disappointment" would cause him to "sustain on that account a very great loss, as it has of late years been the chief part of his livelihood and support." The following very characteristic memorial of Mr. Hitchins represents clearly the general feeling of all the computers:—

"To the Honourable the Commissioners appointed by Acts of Parliament for the discovery of the longitude at sea, &c. The Petition of Malachy Hitchins, clerk, humbly sheweth,—

"That having been employed for twenty-six years\* past by the Hon. Board of Longitude in computing and revising the "Nautical Almanac," in which he has discharged his duty with the greatest fidelity, according to the best of his abilities, and he flatters himself to the satisfaction of his honourable employers, he is sorry to find that he is now suddenly and unexpectedly to lose his appointment for seven or eight years to come, and

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\* This memorial was presented to the Board of Longitude in 1793. The year in which Mr. Hitchins was first employed on the calculations must therefore be 1767, or possibly the latter part of 1766.

perhaps for ever. He begs leave to represent to the Hon. Board that on a presumption that he should be continued in the same situation as long as he deserved their confidence by properly executing the trust they kindly reposed in him, he discharged some private pupils for whose education he was liberally paid, and refused others that were offered him, that he might give his whole time to the computations of the ephemeris. On the same supposition of a permanent engagement, he also computed a great number of new tables, and enlarged many old ones for expediting the calculations of the ephemeris, all of which will now be of no further service, though their construction cost him at different times, much more than a half-year's close application. For these and other reasons which might be adduced, were it not for fear of intruding too much on the time and attention of the Hon. Commissioners, he humbly requests that the Hon. Board will condescend to take his case into consideration, and either reduce the number of years in advance by letting the computers have one year to finish in the space of two or three, or make him such compensation for his loss and disappointment as they, according to their wonted liberality, shall think meet; and their Petitioner will ever pray, &c.

MALACHY HITCHINS."

It is gratifying to know that these memorials received every sympathy from the members of the Board, and that other astronomical work was found, which was probably sufficient to fully occupy the time of the computers during the suspension of the ordinary calculations. I think that we can infer that this was the case from the following extract taken from the Minute-Book of the Board, dated December 7, 1793.

"The Astronomer Royal called the attention of the Board to what he had mentioned at the last meeting, respecting the "Nautical Almanacs," which were now computed to the end of 1804, or ten years in advance, and submitted to their consideration whether it might not be proper to discontinue the calculations of them for some years to come, agreeably to a proposal from Dr. Hornsby, that if any improvements are made in the tables from which the Almanacs are now computed, they might be adopted. The Board admitted the propriety of stopping the calculations for the "Nautical Almanac" for some time, and resolved they should be discontinued for five years.

“ Petitions from the computers, Mr. Henry Andrews, Mrs. Mary Edwards, and the Rev. Malachy Hitchins, were then read, representing the great loss they should sustain, if after having made the computations for twenty-six years, they are deprived of an employment from which they derive their support, and on which they have been accustomed to depend, without having received any notice till lately of this unfortunate event to them being likely to take place, and praying for such relief as should be found meet.”

After some discussion the Board resolved, on the recommendation of the Astronomer Royal, to employ the computers on extra computations during the next five years, particularly with regard to the comparison of the results of these calculations, made with Lalande and Mason's new tables of the moon, with the observations that have been made at the Royal Observatory since the establishment of the new instruments by Dr. Bradley in 1750, and “that the computers should be paid at the same rate as at present, according to the quantity of work they should do.”\*

It is only necessary to remark further that the suspension of the ordinary calculations turned out, as was expected, to be advantageous to the character of the work, as it enabled the employment of several improved methods in the computation of the Almanacs after 1804. All the old computers were in due time restored to their usual amount of work, and the Almanac in future was issued about four or five years in advance. After the death of Mr. Hitchins the office of comparer was left in abeyance for two years, when, in 1811, the Rev. Mr. Brown, of Tideswell, Derbyshire, was appointed by the Board of Longitude to succeed him. During this interval the duties of the comparer were assigned to those of the computers who had the most experience in the calculations.

Before closing these notes, I think that I ought to refer to an important error in some of the County histories, relating to the date when the Rev. Malachy Hitchins was connected for a short time with the staff of the Royal Observatory, and when he assisted in observing the transit of Venus, and in making other astronomical observations, all of which may be found recorded in the volume of “Greenwich Observations” for 1769. This error

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\* Royal Observatory MSS., Class A, Shelf B., No. 418.

occurs in Davies Gilbert's "Parochial History of Cornwall," vol. ii, in which a brief biographical notice of Malachy Hitchins is given. It has, unfortunately, been reproduced in subsequent references to his connection with the Greenwich Observatory, —notably almost *verbatim* in Lake's "History of Cornwall;" and it is not long since that I have heard the same error repeated in conversation. The erroneous paragraph as given in Lake's "Cornwall," vol. ii, p. 137, is as follows:—

"Mr. Hitchins was soon noticed by the mathematicians, and recommended to the Rev. Nevil Maskelyne, Astronomer Royal, to assist him at the Royal Observatory; and when that gentleman went to St. Helena in 1761 to observe the transit of Venus, and to ascertain, if it were possible, the parallax of Sirius, Mr. Hitchins had the whole care of the Observatory entrusted to him."

When Dr. Maskelyne went to St. Helena in 1761 to observe the transit of Venus and other astronomical phenomena, Dr. Bradley, who died in 1762, was the Astronomer Royal, and at that time Dr. Maskelyne had no official connection with the Royal Observatory. Dr. Bradley was succeeded by Dr. Bliss, who died in 1764, and Dr. Maskelyne was appointed Astronomer Royal in the beginning of 1765, shortly after which Mr. Hitchins came to Greenwich for a time to take part in the calculations of the new ephemeris. At the request of the Council of the Royal Society, Mr. William Bayley, Dr. Maskelyne's sole assistant, was sent to the North Cape to observe the transit of Venus of 1769, and during his absence of several months, Mr. Hitchins took his place at the Observatory, and observed daily with the meridian instruments, from about the middle of April to near the end of July, and on June 3rd he was one of the observers of the transit of Venus.\* During any temporary absence of the Astronomer Royal, he was most likely entrusted with the charge of the Observatory till the return of Mr. Bayley, when it would appear that his astronomical observations ceased.

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\* The transit of Venus of June 3rd, 1769, was observed at the Royal Observatory by Dr. Maskelyne, Mr. Hitchins, and five other observers who came to Greenwich for the special purpose of observing the transit. Mr. J. Bradley, nephew of Dr. Bradley, and formerly an assistant at the Royal Observatory, was also sent by Dr. Maskelyne into Cornwall, where he observed the transit successfully at the Lizard.



In Dr. Maskelyne's account of the Greenwich observations of the transit of Venus, he refers to Mr. Hitchins as "a gentleman well acquainted with astronomy and astronomical calculations, who has made and examined many belonging to the "Nautical Almanac," and has been so obliging as to come here and assist me in making astronomical observations during the absence of my assistant, who is gone to the North Cape, by appointment of the Royal Society, to observe the transit of Venus there."† It is to be hoped that this serious error of date, probably owing to a slip of the pen of one of Malachy Hitchins's most intimate scientific friends, will not be further perpetuated in any future history of the county; and it would be well if the possessors of copies of the two works I have mentioned, and of any other in which the erroneous statement occurs, would make the correction in accordance with the facts recorded in the following paragraph, which corresponds with that containing the error:—

"Mr. Hitchins was soon noticed by the mathematicians, and recommended to the Rev. Nevil Maskelyne, Astronomer Royal, to assist him at the Royal Observatory in the calculations of the "Nautical Almanac;" and when Mr. Bayley, the sole assistant of that gentleman went to the North Cape in 1769, to observe the transit of Venus, Mr. Hitchins temporarily took his place and observed with the astronomical instruments till the return of Mr. Bayley to the Observatory."

Of Malachy Hitchins's four sons, one only appears to have been connected in any way with his father's scientific pursuits. I believe that he assisted his father occasionally in the calculations of the Almanac. With reference to the remark made in Gilbert's "Cornwall," vol. ii, p. 224, and in Lake's "History," vol. ii, p. 138, that this the third son, William Malachy, "filled the office for some time that his father had occupied at the Royal Observatory," I find recorded in the Observatory MSS that his service lasted only about eleven weeks, from April 8 to June 22, 1787, when he was about seventeen years of age.

In concluding these brief notices of the association of the Rev. Malachy Hitchins with the early history of our national ephemeris, I may remark that all his manuscripts that I have seen, both his ordinary hand-writing and his calculations, are

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† Phil. Trans., vol. lviii, p. 360.



very clearly and distinctly written ; his signature particularly so. I have lately found preserved between the leaves of an old volume of astronomical tables, formerly belonging to him, an excellent sample of his autograph, consisting of a certificate of good character in favour of his eldest son, Richard Hawkin Hitchins, B.D.,\* on his nomination to the Rectory of Baverstock, Wilts. It is addressed to John, Lord Bishop of Exeter, and dated June 23rd, 1804. The certificate is certainly in the hand-writing of Malachy Hitchins, and contains the original signatures of "Phil. Webber, Rector of Mawnan ; George Coryton, Minister of Penzance ; Thos. Trevethan, Vicar of Shebbear ; and Malachy Hitchins, Vicar of St. Hilary."

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\* Curate of Falmouth 33 years. ("Biblio Cornub.") The following is from a Catalogue of Oxford Graduates,—“Richard Hawkin Hitchins, Exeter College, B.A., March 19, 1787.—M.A., June 12, 1789.—B.D, June 20, 1799.”

NOTES ON THE IGNEOUS ROCKS OF SOUTH-EAST CORNWALL,  
AND THEIR STRATIGRAPHICAL VALUES.

By R. N. WORTH, F.G.S., Cor. Mem.

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Various points affecting the correlation of the rocks of Central and West Cornwall, have been discussed before this Society of late, particularly by Mr. J. H. Collins, F.G.S., and Mr. A. Somervail. I have not the requisite knowledge of the geological detail of the district in question, to authorise my commenting upon their views and work; nor is it my intention in this paper to do more than throw out a few suggestions derived from the conditions of South-East Cornwall, which I think may aid in the solution of the "still vexed" problems of our stratigraphical relations. I have no belief myself that this solution will be authoritatively attained until the whole county has been officially resurveyed geologically on the six-inch scale; but when that is done I believe we shall find that instead of the whole of the sedimentary rocks of Cornwall being Devonian,—the small areas officially admitted as Silurian and Carboniferous only excepted,—we shall find that Devonian rocks are almost wholly confined to the east of the county; that Silurian occupy a very much wider area than is at present recognised; that Mr. Collins's suggested Cambrian has a very substantial basis; and that the Archæan assignment to the Lizard district of Professor Bonney is maintained. Further, I have a very strong impression that by far the larger part of our mining area from Tavistock westward is pre-Devonian. These points are, however, to a large extent at present merely matters of faith, in agreement with the confessedly imperfect evidence now before me.

Two great difficulties hamper the definite issue of this controversy. The first is the great confusion which rules among our Cornish strata, in consequence of the frequent disturbances to which they have been subjected. The second—the great similarities among our slaty rocks in their general characters, and the absence of fossils over wide areas. Any means that will enable us to differentiate our sedimentary rocks, and assign them a definite place in the scheme of stratigraphy, which neither De la Beche, Sedgwick, nor Murchison can be held to have closed, should then be welcome.

I believe that we may find our igneous rocks of very great utility in this direction ; and I propose to illustrate my meaning by some notes on recent inquiries into the character of the rocks of South-East Cornwall.

I must premise by pointing out that the help to be derived from the existing Survey Map is limited. Numerous exposures, and some of these among the most stratigraphically valuable, are unmapped. Those that are mapped are coloured under four classes only—granite, elvan, greenstone, and serpentine. It is the vague third term that causes all our uncertainty, and compels an examination in the field before we can decide what these “greenstone” rocks really are. It should be understood that no attempt is being made to depreciate Sir Henry de la Beche’s really marvellous work. What he did no one at that day could have done better ; but it is little short of a national scandal that after nearly fifty years the Geological Map of the most important mining centre of the kingdom should remain practically as he left it.

There are in South-East Cornwall six classes of igneous rocks, more or less distinctive in character :—

1.—Lavas (Dunstones) with Ashes and Tuffs. 2.—Gabbros. 3.—Dolerites. 4.—Serpentine or Picrite. 5.—Granites and Elvans. 6.—Triassic Basalt or Felsite. The ages of three of these we can fairly fix, and thus obtain some clue to that of the rocks in which they occur.

The Lavas are unquestionably Devonian. They are contemporaneous with, and interstratified among, the Devonian slates that underlie the Plymouth limestone, ranging up to contact with it. They are associated with ash-beds and tuffs, in the main schistose, which often graduate into the slate in such a way that it is impossible to say precisely where the one series ends and the other begins. They are moreover not only Devonian, but characteristic within our area of a definite section of the Devonian period. With the containing rocks they have been much disturbed, and in the vicinity of Plymouth and Saltash are thrown into a series of folds with frequent repetition, much more characteristic in the field than on the map—though there the parallelism is striking enough.

How imperfect are the data the map supplies may well be illustrated by a reference to the Saltash area, where in all seven bands of greenstone are shown, some of which clearly continue across the Tamar. Now on the Devonshire side the whole of the bands of this group, with the exception of the most northerly, that at Ernesettle, are lavas, ashes, or tuffs, more or less altered, and therefore contemporaneous with the slates among which they are found. On the Cornish side lavas and ashes still predominate (it is a schistose ash or tuff that forms the point at the Saltash Bridge); but intrusive rocks occur at various spots, as Cumble Tor, Grove, and Treluggan on the Notter, Burraton Combe, and Wearde, close by Antony Passage. At Cumble Tor there is a lava flow separated from the intrusive rock only by some altered slate; and at Burraton Combe, immediately north of Forder (Ford on the map), where one band is shown to widen out, there are really two bands, the southern, at Forder, being a vesicular lava.

The rocks of Ernesettle, Notter, Burraton, and Wearde are examples of the Dolerites, which form my third class. Their intrusive character cannot be mistaken; therefore they are of later date than the Devonian lavas. Moreover, since in their intrusion they appear to have taken advantage of the points of least resistance afforded by the plications of the Devonian series, they are in all probability later than the great movements by which these rocks were thrown into their present relations. It remains to be seen whether a limit of youth as well as of age can be assigned them. There is a chance that this may be done, if we can clearly identify the rocks of this section (and of those that will be treated next in order) among the constituents of the few relics of our Cornish Triassic conglomerate, which I am not without hope I may yet be able to do.

The rocks to which I allude as the Gabbros have not been identified in the district under that name; and I use it chiefly to indicate a relationship which I believe to exist between the rocks in question and the undoubted gabbros of the Tavy area, and elsewhere on the granite borders in Devon. Cocks Tor, Smear Ridge, and White Tor in Peter and Mary Tavy, have long been recognised as in the main gabbros, having diallage as their pyroxenic constituent. Near the granite, however, this diallage

is largely altered into hornblende. The same facts are observed in a boss of similar rock at Lydford, and a boss at Houndall, Cornwood.

Gabbros also occur near Dartington, Hennock, Botter, and elsewhere in Devon. These rocks are frequently associated with hornblende schist, and this schist again passes into a hard green-banded flinty rock which has been called "ribbon jasper," but which, seeing that the green portions are really quartz charged with actinolite, may fairly be called "prase schist." The reason why these points are brought out now, is to emphasize the fact that precisely the phenomena here enumerated are presented by the mass of eruptive rock which forms St. Cleer Downs, and which if not a definite gabbro itself in mass, though portions certainly are, certainly belongs to this Gabbro series. To the age of this rock we have a modern limit. It is clearly older than the granite because it is altered by it. In the other direction we have to decide what is the age of the youngest rock which it breaks through. In Devon that has been classed as Carboniferous; and if this be so—I am by no means convinced on the point—there cannot, as we shall see, be much difference in point of age between the gabbro and the granite itself. My suggestion is that these local gabbros, being always found on the granite margins, were originally deep-seated igneous rocks, brought up on the flanks of the granite and exposed by denudation. It is of course quite possible that, as with the dolerites already noted, these gabbros may not be all contemporary, but the probability seems to be that they are of approximately the same age.

The Granites and Elvans belong to one series, though of two periods in that series. The fact that the granite of Dartmoor sends veins into unquestionably Carboniferous rocks, shews that it is Post-Carboniferous. The fact that granite pebbles are found in some of our Triassic conglomerates shows that it is pre-Triassic. The elvans are shown to be younger than the ordinary granites by cutting them; and there are granitic veins also of this later date.

The age of the Triassic Trap of Cawsand is indicated by its unquestionably Triassic characters, and by its association with a small area of Triassic conglomerate.

There remains now only the Serpentine or Picrite of Clicker Tor. The intrusive character of this rock is clear, but the only fact we have to date it by is that it rises in Devonian rocks, satisfactorily proved to be such by the occurrence within a short distance, of thin bands of interstratified Devonian lava. The Clicker Tor rock was originally an olivine-dolerite, the olivine in which is now chiefly converted into serpentine. Felspar is also indicated, with plates of unaltered augite and some magnetite. The only rocks in the more immediate locality that exhibit any trace of relationship to this are intrusive masses at Rock and Yealmpton, near Plymouth, which contain serpentine, in part a result of the alteration of olivine. The main point to be settled is whether the difference between this rock and the gabbros is due to the different lines which metamorphism has pursued (and it seems to be conclusively proved, as Mr. Allport has shown, with regard to the hornblendic rocks of Penzance, that proximity to the granite has resulted in hornblendic change\*); or whether the presence of olivine does not indicate not only a marked difference in original composition but also in date. The presence of mica in the doleritic group of Saltash appears very clearly to differentiate that series.

If I have succeeded in making my points clear, it will be gathered that the igneous rocks of South-East Cornwall do afford some clues to the ages of the strata with which they are associated. The granites, which, next to the Devonian volcanic series, are the most definitely dated, are however of practically no chronological value to us, because of the high relative antiquity of the rocks through which they rise. The other intrusive rocks, when their relations are better understood, will in all probability afford us some aid, for they seem to give evidence of recurring periods of igneous activity.

Our chief reliance must, however, be upon the volcanic series first described. Wherever they are found we may, I believe, identify the rocks with which they are interstratified as Devonian, —indeed Middle Devonian; and in many cases we shall be able to reason with reasonable certainty from the datum thus given, to the age of the non-Devonian rocks of the immediate

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\* *Quar. Jour. Geo. Soc.*, Vol. XXXII., p. 425.

locality. Everything here, however, will of course depend upon our ability to identify this special volcanic series by its lithological characters.

I do not believe that this is at all difficult, or that save in a very few exceptional cases, any one who has studied these rocks as a series, can fail to recognise them wherever they may be found within the area under discussion. At least this is the conclusion at which I have arrived from my own studies of these rocks in the field, and from a careful microscopic examination of a large number of selected examples. To get any useful results out of this line of evidence it is, however, essential that the whole question shall be worked out *de novo*; and the real nature of our igneous rocks, mapped and unmapped, be clearly ascertained. Especially is it essential to avoid framing any conclusions from the nomenclature or identifications of our predecessors. We must build to a large extent on their foundations, but the materials must be our own, if our work is to have any current value.

I append some notes on such of the igneous rocks of this district as have been examined microscopically, with a view to indicate their leading characters.

The Lavas are commonly bluish- or greenish-grey in colour, weathering rusty brown. An excellent amygdaloidal variety from Landrake, largely quarried for road metal, is a bluish-grey fine-grained rock with vesicles filled with calcite. The base contains lath-shaped feldspars with crystals of magnetite and pyrites, grouped patchily, and a few microliths. The more distinct tuffs consist chiefly of feldspar granules, with a few quartz, and occasionally finer interstitial matter. One of the most interesting of this class is the soft schistose ochreous-drab rock which crosses the Tamar at Saltash Bridge. This is made up of broken feldspar crystals and fragments of volcanic rock in a kind of fluidal matrix. Some of the fragments are strongly outlined by black streaks and strings from each other. The generally identifiable minerals in this series are plagioclase-feldspars and iron oxides, with calcite fillings to vesicles; any augite seems to have disappeared.

Of the Dolerites the most interesting section is supplied by Treluggan. It is a dark heavy dull-green crystalline rock, with crystals very distinct and sparkling. The characters of the constituent minerals are uncommonly well preserved. They include plagioclase-felspar, hornblende, augite, viridite, chlorite, magnetite, apatite, and mica. The Notter rock is a dark grey, and contains granular augite, hornblende, plagioclase-felspar, viridite, and ilmenite. Burraton Combe rock is greenish-grey and compact; and has a much altered grey feldspathic base, with altered ilmenite, apatite, and a little viridite. The most crystalline variety of the Wearde stone is very dark-green, and contains plagioclase-felspar, calcite, quartz, brown mica, hornblende, viridite, magnetite, and epidote.\* The Ernesettle rock most nearly resembles this in composition, though the most typical varieties are a mottled grey—light felspar contrasting with dark hornblende and augite. There are in addition mica, ilmenite, and viridite—augite much altered.

The Cawsand Triassic Trap is mostly red, occasionally veined and spotted with white. It is slightly vesicular, contains porphyritic felspars and has two varieties—one earthy, the other compact and semi-vitreous. Mica is evident to the naked eye in some quantity, but under the microscope it is seen to be much more abundant, though it does not compare in this respect with the well-defined Triassic mica-trap of Killerton near Exeter. From the central mass of this trap veins are sent a considerable distance, traversing the adjacent slates as far as Millbrook and Whitsand Bay. This rock evidently marks the last epoch of volcanic activity in the West; and it is associated with considerable disturbance of the Devonian strata adjacent.†

The latest authority to examine the Clicker Tor rock is Mr. J. H. Teall, who figures and describes it in his fine work on British Petrography. He classes it as a Picrite, and as having been originally an ophitic dolerite or diabase, in which olivine

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\* On these dolerites see also Mr. Phillips's paper, *Quar. Jour. Geo. Soc.*, Vol. XXXIV., pp. 471—496.

† Pebbles of a highly scoriaceous lava occur on the beach at Talland, and apparently come from the bed of the Channel. They may be Triassic, but they are quite distinct from the Cawsand trap.



was present in great abundance, and felspar only to a very small extent. The minerals shown in the microscopic section are serpentinous pseudomorphs after olivine, augite and magnetite, with lath-shaped sections of pseudomorphs after felspar. It has a decided character of its own, which distinguishes it from the ordinary Lizard serpentine.

So far as I am aware the Cawsand and Clicker rocks stand quite alone in the district; but it is by no means certain that this is so. Very much work yet remains to be done in ascertaining both the existence and the character of the igneous rocks of South-East Cornwall, and it is impossible to forecast the results. It is hoped that this summary of our present knowledge may lead to fuller and more accurate information.

## AN ANCIENT CORNISH DEED, IN ENGLISH.

Communicated by SIR JOHN MACLEAN, F.S.A., Hon. Member of the  
Royal Institution of Cornwall.

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Our primary object in bringing this Early English Deed under the notice of the Royal Institution of Cornwall is that we think it philologically of some value, and it also, we conceive, possesses much local interest, especially with respect to the parties to it of the second part. The family of Wydeslade, (or Wynslade as the name is sometimes written) was of considerable antiquity in the County. The representative of the family was an hereditary Esquire of the Silver Spur, but its great misfortune in the sixteenth century has caused its existence to be obscured and almost forgotten. Lysons gives the arms they bore as : Ar. a chev. barry undy, ar. and az., between two lapwings, sa.

The earliest note we have of the name is in 1355, when Richard Wydeslade died seized, *inter alia*, of a messuage and curtilage and three virgates of land and seven pence rent in Putteley, in Leche Turville, Co. Gloucester; which he held in capite of William Cummin. He also died siezed of seven messuages, 162 acres of land, 18 acres of meadow, 80 acres of pasture, 51 acres of wood, and the third part of a Mill and appurtances in Frome, Radden, and Marston Bigot, Co. Somerset.\* All these lands he acquired by marriage with Alianer, sister and sole heir of Sir Andrew Braunche, by whose family they had been held from the time of King John. This Richard left a son and heir Stephen, who succeeded him and died 1404-5, seized of the Hundred and Manor of Frome, leaving as his sole heir Elizabeth the wife of Edmund Leversege,† whose issue inherited these lands for several descents.‡

The abovenamed Richard Wydeslade was probably the progenitor of the Cornish family, but at present we have no direct evidence of the fact. He obtained the lands by marriage with the heiress of Braunche, and the name appears to have become

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\* Inq. p.m. 29 Edw. III, No. 31.

† Inq. p.m. 6 Henry VI, No. 35.

‡ Collinson's Hist. of Som., Vol. II, p. 187.

extinct, both in Gloucestershire and Somersetshire, on the death of his son without male issue. We do not, moreover, know that he was resident in either of these Counties.

In 1346, two Knights Fees in the Manor of Daunant, in the parish of St. Teath, were held by Alice wife of Sir Walter Carminou, daughter and heir of Stephen Tynten by Elizabeth daughter and heir of Alan Bloyou. These fees in 1428 had become much divided, and a quarter part of one fee was held by Thomas Carminow and others, and John Wydeslade and others held the remaining portions.\*

We find in the Assize Roll for Cornwall, 1413 to 1422, that Agnes who was the wife of Thomas Roscarock appointed as her Attornies, in a plea against John Dagele and Agnes his wife, Walter Tapeleigh her husband and John Wydeslade.†

On 8th June, 1443, John Wydeslade of Cornwall, gave half a mark for a writ of concord.‡

In 1431, John Wydeslade and Elizabeth his wife, and Stephen Trenewith and Isabella his wife, suffered a fine to Walter Pollard, John Mulys, Richard Resprenna, William Blynche, and Nicholas Legh, of the Manor of Treglaston with appurtenances in Bottaburgh, Bokelly, Tregellest, Bodmin, Tregwethian, Seynteth, and numerous other places named, whereby the said John Wydeslade and Elizabeth and Stephen and Isabella recognised the Manor as the right of said Walter Pollard, John Mulys and the others, with 100 shillings rent etc. together with the homage and services of Ralph Botreaux, knt., John Abbot of Clyue, and his successors, and divers other persons, and the heirs of all of them, for the tenements which they respectively held of the said John Wydeslade and Elizabeth his wife, and Stephen Trenewith and Isabella his wife, to hold to the said Walter Pollard, John Mulys and the others of the chief lord of the fee at the services thereto pertaining, and for this fine the said Walter and the others gave the said John Wydeslade and the others 300 marks of silver.§

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\* Hist. of Trigg Minor, Vol. III, pp. 136, 137.

† Assize Roll, Cornw. 3—10 Henry V. <sup>N</sup>3 } 2  
41 }

‡ Rot. Fin., 21 Henry VI, M. 24.

§ Ped. Fin. 10 Henry VI, Mich. 5.

In 1485, Thomas Dannan held lands in the Manor of Treglasta, of John Wydeslade and Elizabeth his wife.\*

John Wydeslade and Elizabeth his wife are doubtless the John and Elizabeth who head our pedigree, and we are of opinion that further research would shew Elizabeth and Isabella to be sisters and coheirs, but whose daughters they were there is not at present any thing to shew.†

In 1452, another fine was levied between Roger Brode, clerk; John Carburra, clerk; Robert Heyman, clerk; John Gay, jun.; and John Whyte son of Thomas Whyte of Treglast, querists, and Richard Wydeslade and Mary his wife deforciant, by which the Manors of Bossini, Turcoys, Methyan, Bugales and Tregerick with their appurtenances were conveyed to Roger Brode and the others for the term of their lives and after their decease the remainder to the said Richard and Mary and the heirs of their bodies, and, in default of such issue, remainder to the right heirs of Mary.‡ That Mary was an heiress is evident, for the object of this fine was so to settle the lands that in the event of her dying s.p., they should revert to *her* heirs and not to the heirs of Richard Wyndslade.

It appears from the Deed of which we are treating that John Wydeslade and Elizabeth his wife had beside Richard another son named John whose wife was Alice, and that Richard and his wife Mary had issue another John, whose wife was named Ann. They had issue, a son who was also named John who was one of the "heads and Captains of the rebellion" in Cornwall in the summer of 1549,§ under Humphry Arundel, of Helland, in resistance to the change of religion. After the defeat of the insurgents at Clifton down near Exeter, in August of that year, John Wydeslade with Humphry Arundel and others were made prisoners, and the former was executed at Tyburn, and his estates were forfeited, notwithstanding that

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\* Hist. of Trigg Minor Vol. 2, p. 141.

† In 1443, John Wydeslade was querist in a fine in which Odo Vyvyan and Matilda his wife were defor., by which Trewenhelek and other lands were settled on Odo and his wife, rem. to John Arundel, Esq., son of John Arundel, late of Bideford; rem. to Richard Tregoya, Esq.; rem. to Rich. Penpons and Amicia his wife; rem. to the right heirs of Matilda.—Ped. Fin. 21 Henry VI, No. 1.

‡ Ped. Fin., 30 Hen. VI, Trinity.

§ Strype's Memorials, Vol. II, p. 281.

before the rising, and consequently before his attainder, viz: in Easter term 36 Henry viij, he suffered a recovery in the Manors of Treglasta, Tregarrack, Kelliowe, and Pensight to John Cory and Richard Popham, who, by their Charter demised the same to the said John Wydeslade and Agnes his wife for the term of their lives, remainder to the heirs of the said John Wydeslade. He was also seized of the Manor of Estcott and other lands, and by his charter dated 4th January, 25 Henry viij (1533—4) he granted the same to a certain Robert Wydeslade and the heirs male of his body, in default remainder to the said John Wydeslade and his heirs. This reversion also was seized by the King who granted the whole in 1552, to Reginald Mohun.\*

John Wydeslade left issue. Carew, writing about fifty years after his execution, states in his usual quaint style, that "Wydeslade's sonne led a walking life with his harpe, to gentlemen's houses, wherethrough, and by his active qualities, he was entitled *Sir Tristram*; neither wanted he (as some say) *a bele Isound*, the more aptly to resemble his pattern."† Unfortunately Carew omits to mention his name, and we have no knowledge of his issue, if any.

A William Wydeslade's name appears in a return for the Hundred of Trigg of all the landowners in that Hundred and the value of their lands, as holding lands in the parish of Helland worth 10s. a year, and in St. Minver worth 13s. 4d. a year. The return is not dated, but from internal evidence appears to have been made between 1521 and 1523.‡

We have stated above that the heads of this family were hereditary Esquires of the White Spur. Weever says of these that they are the fourth grade of Esquires (the first being the Esquires of the King's Body; the second, the eldest sons of knights; and the third the younger sons of the eldest sons of barons) unto whom the king himself, together with a title, giveth arms, or createth Esquires§ by putting about their necks a silver collar of SS. and (in former times) a pair of white spurs,

\* Rot. Pat. 6 Edw. VI, part 9, m. 40.

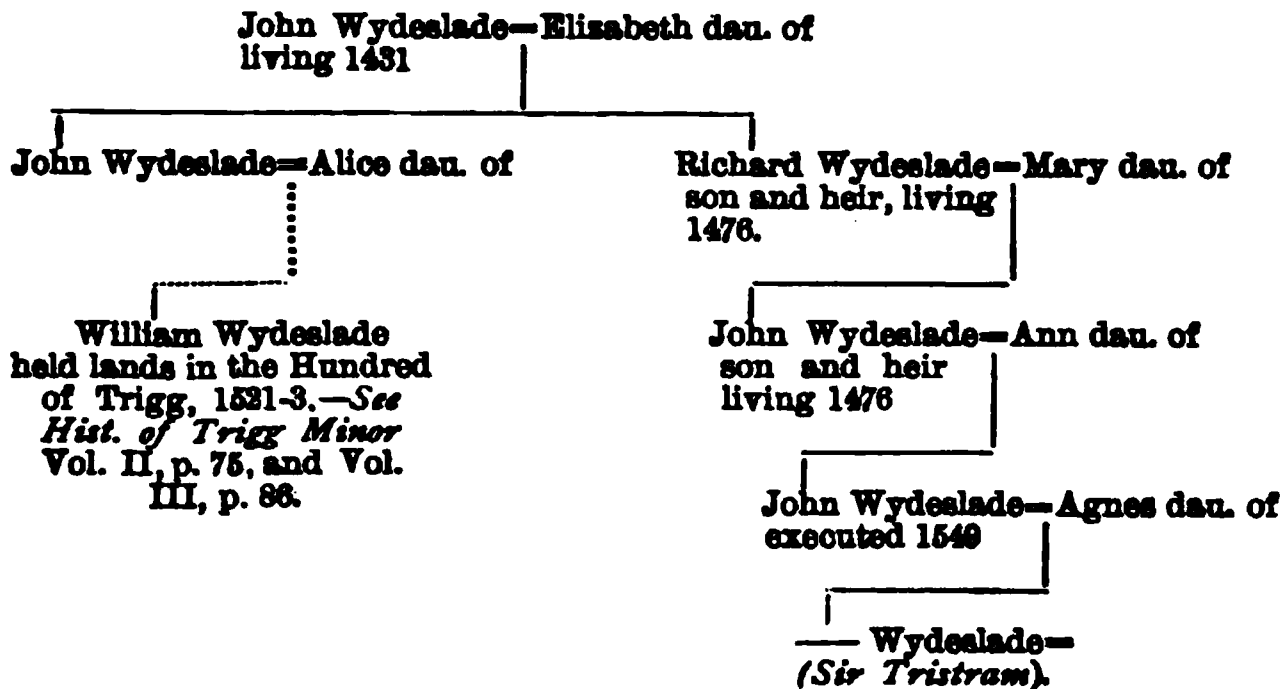
† Survey of Cornwall, Edit. 1769, p. 131.

‡ Hist. Trigg Minor, Vol. II, p. 75; III. 86.

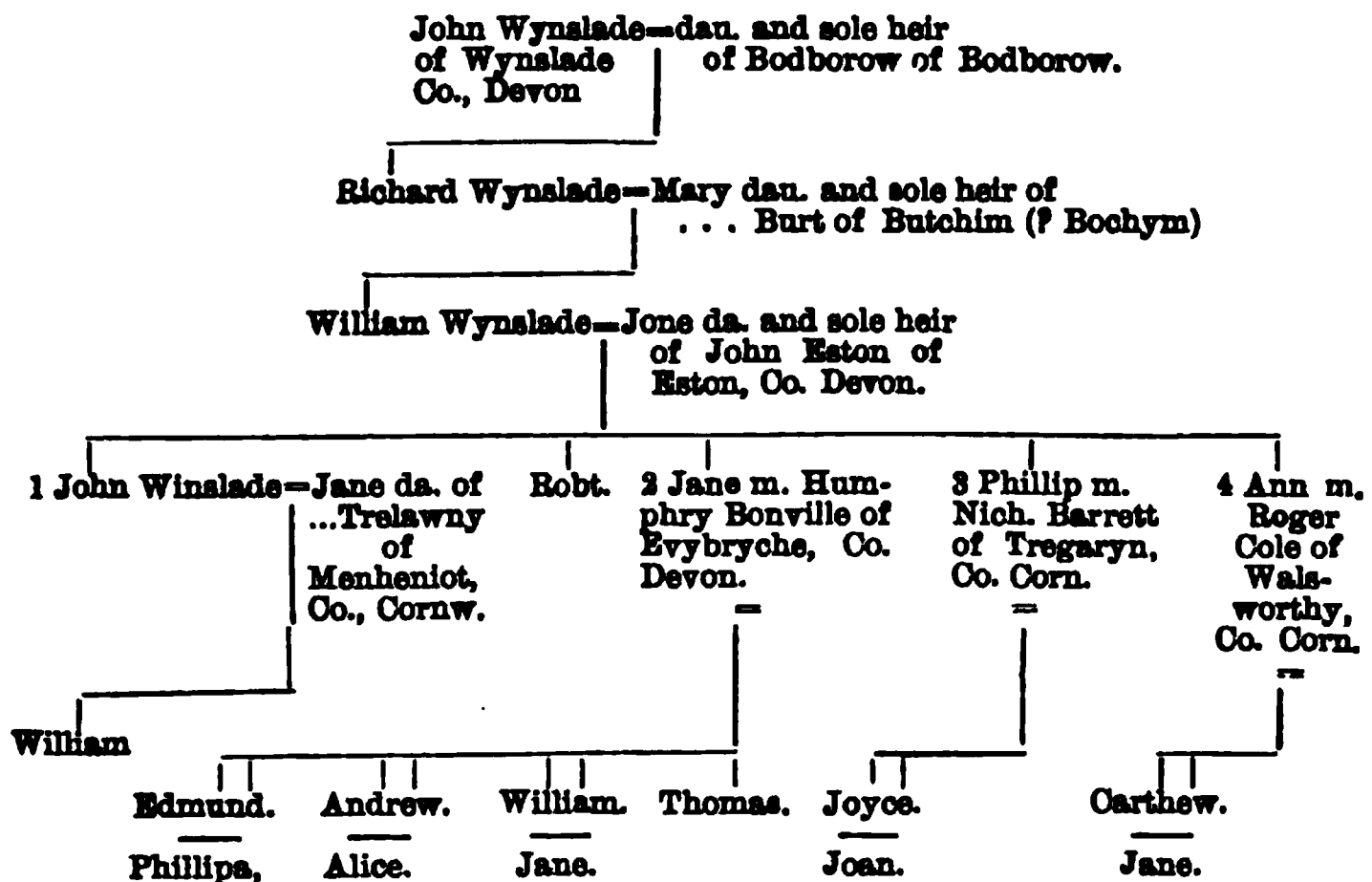
§ The only instance of the creation of an Esquire in modern times known to us is that of John Brown, the late personal attendant on the Queen, whom Her Majesty was pleased so to create.

silvered, whereupon at this day, in the west part of the kingdom, they are called *White Spurs* as a distinction from knights who were wont to wear gilt spurs; and to the first begotten sons only of these doth the title belong.\*

PEDIGREE OF WYDESLADE FROM THE DEED.



Since the above was in type we have received, through the courtesy of one of the Officers of Arms, the following pedigree of the family of Wynslade, extracted from the Heralds Visitation of Cornwall, in 1531. It is recorded in a narrative form, but for greater convenience of reference we have cast it into a tabular :



\* Weever's Funeral Monuments, Edit. 1767, p. 357; see also Selden's Works, Titles of Honour, Edit. 1726, Vol. III, p. 854.

The arms allowed to this family at the visitation were:  
 1 and 4—ar. a chev. vairè between three Cornish Choughs rising  
 ppr. 2—sa. a chev. betw. three (? bears') heads erased palewise  
 ar. 3—ar. two chevronels paly or and az.

G. 2. 29 }  
 H. 18, 83 } Visitations of Cornwall, 1531.

It will be observed that the paternal arms as assigned by Lysons, by what authority we know not, and those allowed in the Visitation referred to are substantially the same, the difference being no more than might be adopted to distinguish two branches of the same family. We fail, however, to identify the individuals in the two pedigrees. It is not unlikely, however, that Robert Wydeslade the grantee of the manor of Estcott in 1533-4 was identical with Robert the son of William in the second pedigree, and that the said William was the same who held lands in Trigg ten years previously.

It would seem to be desirable to add a few words relative to Foway-more, in a moiety which the Abbot of Oleeve claims to share with Richard Wydeslade the profits of the toll of tin, the turbary, coal and other yearly profits arising out of the moor. The Manor of Foweyton has been identified by Lysons and others with the Manor of Faweton, alias Trenay, in the parish of St. Neot, and Lysons states that it was vested in the Daubeney family from the reign of King Edward I, if not earlier, to that of Henry VIII,\* but this statement is hardly consistent with what we know of the Manor from other sources. It would seem from this Indenture, for example, that the Abbey of Oleeve had a share in the Manorial rights in 1476. From the Inquisition post-mortem of William Fitz Wauter, who died in 1385, that he died seized of two parcels of land in Brownwalyng (Brownwilly) and Stymkodda, which he held of Ralph son and heir of John de Wellington as of his Manor of Fowyton. The Manor of Brownwillie would seem to have been a member of the Manor Fowyton, and is described as a Manor as late as 1639, but this is the only instance in which we have seen it so described.† Fowyton, however, was one of the Cornish manors of the

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\* Magna Brit. Vol. III, p. 245.

† Hist. of Trigg Minor, Vol. I, p. 380.

Wellington family down to the year 1396, when, upon the death of John de Wyllington, the estates were carried by his two sisters and coheirs in marriage to the families of Beaumont and Wroth.\*

It is also interesting to observe that among the profits of the Manor of Fowayton claimed by the Abbot, was "a halfe of the money commynge from the bestes pasturyng in the seid more;" summer pasturage of cattle being one of the principal sources of profit, we believe, derived from those moors at the present time.

DE BANCO ROLL, MICHAELMAS 17 EDW. IV.

[m.1] Rotulus de cartis scriptis et proteccionibus cognitis et allocatis coram Thoma Bryan et sociis suis Justiciariis domini Regis de Banco de Termino sancti michaelis anno regni Regis Edwardi quarti decimo septimo.

[m.2] ¶ Ricardus Wydeslade filius et heres Johannis Wydeslade et Elizabeth uxoris ejus et Johannes Wydeslade armiger filius et heres apparens predicti Ricardi venerunt hic in Curia vicesimo sexto die Novembris isto eodem termino et cognoverunt hoc scriptum indentatum subsequens fore factum suum et pecierunt illud irrotulari et irrotulatur in hec verba.

This endenture made the xxvij<sup>th</sup> day of June in the xvij<sup>th</sup> yere of the reigne of Kynge Edwarde the iiij<sup>th</sup> bitwene David Abbot of Clyve and Covent of the same place of that oone partie And Richarde Wydeslade sone and heire of John Wideslade and of Elizabeth his wyfe and John Wydeslade Esquyer sone and heire apparant of the seid Richarde of that other partie Wytnessithe that where afore this tyme upone divers variaunces contraversies strives and debates had and moved bitwene the said Abbot and Covent of that oone partie and the seid Richarde Wydeslade of that other partie of and upon the right title clayme and paiement of xxvj<sup>s</sup> viij<sup>d</sup> goynge oute of a more called Fowaymore in the Countie of Cornwaille And of and for the Tynne Tolle Turbarie Cole and other yerly profits commynge and growynge of and in the same More Richarde Choke knyghte oone of the kynges Justices of the Benche Arbitratours chosene bitwene the said Abbot and Covent and the said Richard Wydeslade of and upone the premisses by thassent instaunce and preieres of the same parties awardele ordeignede and demede by writynge indented wherof the date is the xx<sup>th</sup> day of Marche in the seid xvij<sup>th</sup> yere of oure seid soveraigne lorde Kynge Edwarde the iiij<sup>th</sup> that the seid Abbot and his Successours shulde have yerly halfe the Tynne Tolle

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\* Ibid. p. 384.



Turbarie and Cole growynge and commynge of the said More And halfe of the money and profite commynge of the bestes pasturyng in the seid More And halfe of alle manere other profites growynge and commynge of the same as lord of the demeane of the moyte of the same More withoute interrupcion or lette of the seid Richarde and his heires or of any other havynge any title or interesse to their use or by their commaundment And that the tenautes there of the seid Abbottes and his successors for their bestes in the seid More shall paie as other ther shall do And the seid Richard Wydeslade his heires and assignees and all other havynge any right title or interesse in the seid rent to their use shulde take and perceyve the same rent of the parte of suche money as shall come of the seid bestes whiche parte shall be to the other lordes of the demene of the other moite of the seid more And the same Richarde Wydeslade his heirs and his assignees and alle other havynge any ryght title or interesse in the seid Rent to their use nothyng for the same rent to take of the seid Abbottes and his successours parte of the said money but the profite of the parte of the seid Abbot and his Successours to be thereof discharged ayenst the seid Richarde and his heires and assignees and alle other havynge any right title or interesse therin to their use And if it fortune that the sayd rent may not be contente of the moite of the money commynge of the seid bestes in the Somer Whiche moite shall be to the seid other lordes of the seyde more in the seid Somer tyme Than suche bestes as comethe or shall come upone the same more in the Wynter tyme shuld be distreignede by the baillife of the seid Abbot and his Successours and the baillife of the seid Rychard Wydeslade and his heires of the same More Or by the bailliffe of the seid Richarde Wydeslade and his heires if the baillife of the seid Abbot or his Successours be not redy or will not attende at such tyme as shall be expedient to make suche distresse The baillife of the seid Abbot and his Successours havynge reasonable warnynge by the baillife of the said Richard and his heirs in this behalf And suche money as shall be levied thereby of theym at suche tyme shulde be evenly departede bitwene the seid Abbot and his Successours and the seid other lordes of the seid More and their heires And the seid Abbot and his Successours to have the oone parte thereof withoute interrupcion of the said Richarde and his heirs or of any other for theym And the other lordes the other parte thereof And the seid Richarde and his heires to take and perceyve his rent so not content of the parte of the same money of the seid other lordes of the seid more for their full contentacion of the said rent withoute eny other distresse or levie makynge by the same Richarde or his heires for the seid rent or any parcell thereof in the seid More And over this the seid Richarde Choke awarded ordeigned and demed that the seid Abbot and Covent and Richarde Wydeslade shall aswell sette their seales to this awarde as I the seid Richard Choke

And over this the seid Abbot and Covent and the seid Richarde Wydeslade shall by wrytynge endentide to be made bitwene theym graunt and agree that they theire successours and heires shall well and truly performe this awarde ordinaunce and judgement and the same wrytynge endentide to be knowlechide by the seid Richarde Wydeslade before the Kynges Justice of the comyne place And for the eschewynge of plee and trowbill and for a finall peas thus to be had in the premisses betwene the seid parties the seid Abbot hath paiede in hond unto the seid Richarde x li. of lawefull money of Englonde And over that the seid Richard Choke awarded ordeigned and demed that the said Abbot shulde paie or do to be paiede to the seid Richarde Wydeslade or to his executours other x li. of lawefull money of Englonde at the fest of Seint Petirtheadvincla nex commyng And over this that the seid Richarde Wydeslade and Mary his wyfe John Wydeslade brother to the same Richarde and Alice his wyffe the seid John Wydeslade Esquyer sone to the same Richard and Anne his wyfe and the soules of the seid John Wydeslade and Elizabethe his wyfe ffader and moder to the seid Richard Wydeslade shulbe perpetuely praied fore in the seyde Abbey and hous of Clyve and be remembred in the suffrages and praier of the Abbot and Covent there and their names remembrede and putte in the martilaye of the same hous to be praied fore ther for evermore as brederne and susters of the seid hous And also the seid Richard Choke awarded that the seid Richarde Wydeslade shuld not sue trouble nor vex any servaunte or tenaunte of the seid Abbot for any distresse Tynne Tolle Turbarie or other profite of the seid More takene or had afore the date of the said awarde for the seid Abbot or by his commaundement And in like wyse the seid Abbot shuld not trouble nor vex by accion or otherwyse any of the tenautes or servautes of the same Richarde for any distresse Tynne Tolle or other profite in the seid More takene or had afore the same date for the seid Richarde Wydeslade or by his commaundement as in the seid wrytynge of the same awarde more plynly appierethe The seid Abbot and Covent for theim and their Successours And the seid Richard Wydeslade and John Wydeslade Esquyre for theim and ther heires have covenanted and by thes presents bene accordede and agreeede that thay and everyche of theym their heires and Successours shall well and truly perfourme observe and fulfille the seid awarde ordinaunce and Jugement and every article thinge and condicione thereof accordynge to the same withoute eny lette trouble or doynge the contrarie thereof in any wyse And to theis covenantes accord and agreement of the partie of the seid Richarde Wydeslade and John Wydeslade Esquyer and of their heires to be kepte and observede the same Richarde and John wolle and grauntethe for theym and for their heires and by thies presentes bynd theym and their heires to the seid Abbot and Covent and to their Successours that they and everyche of theym

shall well and truely observe and kepe all the same covenantes accorde and agrement for evermore withoute any lette trouble or doynge the contrarie And in like wise to all the seid covenantes accorde and agrement of the partie of the seid Abbot and Covent and of their Successours to be kepte and observede the same Abbot and Covent wolle and grauntethe for them and their Successours and by thies presents bynde them and their Successours to the seid Richarde and John and to their heires that they shall well and truely observe and kepe all the same covenantes accorde and agrement for evermore withoute any lette trouble or doynge the contrarie In witnesse wherof the seid parties to those presents have enterchaungeably putte their seales and signe manuelx. Yovene the day and yere aforeseide.

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## WHAT TRACES ARE THERE LEFT OF THE OLD LANGUAGE.

BY THE REV. A. H. MALAN.

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In considering this question, I would put aside all proper names, and names of places—interesting as these are—and restrict my remarks to such words as (more or less connected with the Cornish language) are occasionally made use of by our country people in ordinary conversation. The existing traces of the language seem naturally to divide themselves into three kinds:—

(1) Words which are clearly and unmistakably *of Cornish origin*.

(2) Words or phrases which are (*a*) *translations* of old Cornish expressions; or (*b*) which retain the old spelling found in the Dramas.

(3) Words, which, from our limited knowledge of the old language, we are unable to identify as being Cornish, but the meaning and sound of which are expressed by *kindred words* in the other Celtic languages.

I. Words clearly and unmistakably Cornish. If one looks through the valuable glossary by Miss M. A. Courtney, a large number of Cornish words are at once noticed; but that glossary being compiled from a variety of sources, many of the words given are probably now extinct, or obsolete. For the sake of illustration, I will therefore select a few scattered specimens from words I have myself heard used, and which are accordingly *not* obsolete. *E. G.*:—

**BANNAL**—(broom plant). *Bannal* is the late contracted form of the Cornish word *Banathal*. Welsh, *Banadyl*; Breton, *Banal*.

**ARA-A**!—An expression of astonishment. This may be the old Roman Catholic oath, as Mr. Lach-Szyrma has suggested to me—“*Re San Maria!*” (by St. Mary); or it may be the Cornish *Rea*—(wonderful), which in Welsh is *Rhyfedd*.

**BRAGGARTY**—(used of a child's arms or face recovering a *healthy, mottled colour*, after sickness). This is rather an interesting word. Mr. Williams (in the Cornu-British Lexicon,) gives the word *Brith*, as meaning variegated, spotted, &c., which does not, at first sight, seem much like *Braggarty*. But the word is connected with similar words in the other languages. In Welsh, *Brithyll*—a trout (*i.e.* the spotted fish); *Brithog*—a mackerel (the stripy fish). In Irish and Gaelic, *Breac*—a trout, for the same reason. Then in Welsh, *Brech* (noun)—an eruption, and the adjective *Brech*—brindled, freckled; in Irish, *Boreen breac*—a spotted cake (*i.e.* with currants); and the well-known "*Leabhar Breac*" is the spotted book. Mr. Hawker, in "Foot-prints of former men," speaks of the "braggarty worm"—probably referring to those rings which worms often have, producing a brindled appearance.

**BUCHA**—(a scare crow): the Cornish is *Bucca*. Welsh, *Bwci*, or *Bwgan*. Mr. Davies, in one of the Vols. of the Arch. Camb. Reports, refers to Matthew's Translation of the Bible, Ps. 91. 5;—"Thou shalt not be afraid of any Bugs by night:" the Auth. Version reads "Terrors."

**CLIOKHANDED**—(left-handed.) Cornish, *Clodh*—left; Welsh, *Clodh*; Irish, *Clith*.

**COOZING**—(stopping to waste time and gossip in work). The usual word in the Cornish Dramas for *to talk* is *Cousé*. In the "Origo Mundi," line 1900, King David is represented as saying:—

\* "Wose *cous* ha lafurye an vaner a vye da  
Kemeres *croust* hag eve ha powes wose henna."\*

Here we have the word *cous*, from which comes our word "coozing" and also the word *croust*, which is our local word "crowse," for lunch: no doubt the latter is connected with "crust," Latin "crusta"; but the usual pronunciation among our people, we observe, is identical with that in the Miracle Plays.

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\* Mr. Norris's translation—

"After talk and work, the custom is good.—  
To take food and drink and rest after that."

**PARE**—(a pare of men, or party). The Cornish *par* is a comrade, or mate; Welsh, *pâr*. Irish *peire*.

**CROW**—(pig's-crow). Cornish *Crow*; Welsh, *craw*; Irish, *Cro*.

**CROM**—(bent). "The hilt of a shawl should be crom"; Cornish, *Crom*; Welsh, *Crom*; Breton and Irish, the same.

**CAITH**—(cat). Cornish, *Cath*; Welsh, *Câth*. This pronunciation is rather curious; for *th* is one of those sounds which are evaded, if possible; as they say "*ba-vé*" for to bathe; "Sti'ians," for Stithians, etc.

**DROKE**—(a cut or straight groove in a stone). Cornish, *Trochy*, to cut; Gr., *Τρέχω*. Welsh, *Truch*; Arm. *Trouch*.

**MABYER**—(a young hen, just beginning to lay). Cornish, *Map*, a son; and *iar*, the female of birds: Welsh, *Mab*, son, and *idr*, a hen.

**MUNGAR**—(a straw horse collar). Cornish, *myngar*; Welsh, *mynwar*.

**MORGY**—(a dog fish). Cornish, *mor*, sea; and *ci*, dog. Compare *Dour-gi*, otter; Cornish, *dour*, water, (Welsh, *duofr*) and *ci*, dog.

**PENPALY**—(tomtit). Cornish, *Pen*, head; *Paly*, satin; Welsh, the same.

**PLOSH**—(a wet, sloppy place). The word *Plos*, both noun and adjective, is the ordinary word in the Dramas for mud and slush.

**PLUFFY**, Pluffed up—(used of an ailing hen with ruffled feathers). Cornish, *Pluven*, feather; Welsh, *plufon*.

**PLANCHEN**—(a wooden floor); *planchen* is used in the Miracle-plays; a late form of the Cornish, *Plynken*.

**SCAT**—(a blow). This expressive word is used in "Passio Christi," 2815, for a blow:

"How *hale* Kettep onan,  
gesough hy a bart Malan  
yn mortar *skuat* the gothe."

“ Ho!—*haul* everyone ; let it, on Malan’s part, into the mortice, *crack*, to fall.”\*

Here we also have the word “ Hale,” as used now.

TRIG—(“ to trig,” or fasten, “ the gate abroad.”) Cornish, *Trige*, to stay, or fasten.

BOOSTERING—(hard, heavy work). To get up the moor of a big tree would be “ boosting work, sure ’nough ” ; Cornish, *Boys*, heavy. Welsh, *Pwys*, weight.

CHAW ; Not a modern corruption of “ jackdaw,” but Cornish *Chawc*.

BROSE OF HET—(tremendously hot). This *Brose* must, I think, be the Cornish *Bras*,—large ; written *Broaz*, in Pryce ; i, is the usual word in Dramas for anything great ; I find the word *Bras* used as an adverb, in the “ Barzaz Breiz,”—the interesting collection of Breton ballads—for “ excessively.” The Welsh *Bras* is used of the largest specimen in a heap of potatoes, apples, &c.

BUM. When a Cornish boy, in his impetuous zeal, fails to give sufficient observation as to his course, and “ bums his head ” against a wall, he is using the usual word, *Bom*, (pl. *Bommyn*) for blow, in the Miracle Plays. The Welsh have *pwmpio*, to knock.

II. Then there are some words, or phrases, which are translations of Cornish expressions ; or retain just the old pronunciation. Of these I would just mention,—

BLACK-HEAD—(a boil) which is the Cornish *Pon-du*. Welsh, *Pendduyn*.

BLACK-MONTH before Xmas (November)—which is the Cornish *Miz-du*.

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\* St. Malan was a British Saint ; called also Andras. Pilate says—*Passio Christi*, 2341,—“ Re Synt Malan ! ” (by Saint Malan). It may just be mentioned, in connexion with the name, that in the History of the writer’s family, (*L’Histoire des Malans de Merindol*)—compiled from the Archives of Geneva and of Merindol—the accounts are given of the persecutions which the successive generations of Malans endured between the years 1112 and 1685 ; and of the Martyrs’ deaths which several members of the family voluntarily underwent, rather than relinquish their Faith. One or two bore the christian name of André. Of course this is merely a coincidence—nothing more.

**WHIT-NECK**—(a weazel). Cornish, *Codna-gevin*, neck white; Welsh, *Bron-wen*, white breast.

**"BROAD" FIGS**, as opposed to raisins, "dough" figs. Pryce gives "*figes ledan*" for figs proper. Cornish, *ledan*, broad.

**MAY-MONTH—MARCH-MONTH**; the way of putting the word month after the proper name, is probably a survival of the Cornish mode of adding *Mis* (month) to the name, as—"*Mis-March*;" "*Mis-Me*."

**BUSY ALL**—(to do a thing with difficulty). The Cornish word *Bysy* is used in the Dramas as a substantitive, (*diligence*), but also as an adverb—(*with difficulty*) cf. "Resurrectio Christi," 2105 :—

"*Bysy vye ol an blu*"—"hard would it be for all the parish."

**FAUT**—(fault). This pronunciation is the usual rendering of the word in the Dramas—"fout."

**FAY!**—(Iss, fay) on my faith. Cornish *fydh*; later *fay*; cf. Origo Mundi—470;—"Ru'm fey," by my faith.

**GRAMMERSOW**—(woodlouse). I do not know what the Cornish for this annulose crustacian may be; but the "grammer" must be "grandmother"; for the Welsh name is *Gwrach y coed*—"the old woman of the wood."

**HEL**—(the passage leading from the door to the parlour). No doubt the Latin aula, English *Hall*: but the rendering in the Ordinalia is not *Hall*, but "Hel" as now used.

**"OUT OF THE WAY"**—(unseemly, improper); cf. Resurrectio Christi, 1465, where Cleophas says to Thomas, "y thesas ow muskegy, *yn mes a forth*,"—"thou art mad, out of the way."

III. Then there are some words—very many, I believe—which we cannot be sure are Cornish; but there is strong presumptive ground for supposing they are so, from similar words in other languages belonging to the Celts elsewhere.

Perhaps the usual way, when any curious word crops up, is for the local etymologist to rush to his William's Cornish Lexicon and see if it is to be found; and if *not*, then to give up the word as hopeless. Having been guilty of doing that before now, myself, I can well pardon the proceeding. But we must remember



that, *invaluable* as that learned work is, it is compiled from a few Glossaries, and from those words which happen to compose the Dramas, and sundry other literary remains—material, in its sum total, very limited in extent; consequently any other Cornish words *not* met with in these sources, will not be found in the Lexicon. It is absolutely necessary, therefore, to turn to Welsh, and Breton, and Irish, for supplementary information. Thus:—

**BROWSE**—(coarse growth of a hedge side). I can find no word like it in Cornish; but the Welsh have words *Prys*, *Prysglwyn*, *Prysel*, which mean brushwood, tangled brambles, etc.; and the Irish have *Brus*, small branches; and *Bros-na*, in Gaelic means a faggot; and this looks as if there must be some Cornish original for *Browse*.

**DAVERED**—(faded of flowers). The Welsh have the same word —*Difroed*, faded; but what was the Cornish word?

**DIDGY**—(a little “didgy bit,” especially of “nicies.”) The Welsh *Dichwyn*, or *Dichyn*, means a fragment, or morsel but what is the equivalent in Cornish?

**EVAL**—(a five-pronged stable fork). The Cornish word seems gone; but the Welsh, *efal*, remains.

**GEEKING**—(“what be geeking at?”) to stare, to intrude. The Welsh *giegin*, means a sneering, prying way of looking.

And so, it is probable, if anything is to be made of such words as these:—

Clydgy.	Slock.
Clysty.	Sog.
Clome.	Spence.
Wivvy.	Snaid.
Cricket (a low stool)	Tub (gurnard).
Dag (hatchet).	Tut (footstool).
Dagging (bending).	Visgy.
Dover.	Palched.
Flouge.	Paum (to extend).
Gays, or Gaze.	Spall.
Kidda.	Suant.
Murr.	Sump.
Plum.	&c. &c.
Skeat.	

they will have to be got at *vid* the Breton, or Manx, or Irish, or Welsh.

I would merely add, that these disjointed remarks are but, as it were, an introduction to the subject alluded to. The subject is one worthy of interest, and not yet worked out: for the purpose of illustration, I have selected words from my own list; which list, perhaps, when corrected and enlarged, some day may appear in this Journal. *But this is a subject that requires co-operation.* No individual is likely to hear a tenth part of the old words, still lingering among us. The fishermen and miners make use of different words from the agricultural labourers, and mechanics; and neighbouring districts much vary in their patois. I would fain enlist the interest of my Reverend Brethren in this subject. None have better opportunities than the country clergy of noting down and collecting odd words as they go their parish rounds. If one or two clergymen in every Deanery in the Diocese would jot down the old words they hear, or have heard in their respective districts, their united efforts would be the means of recording, for future generations, what traces there are, in 1886, of the old Cornish language.

## THE MORPHOLOGY AND DEVELOPMENT OF THE ANTHER.

By J. SNELL.

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The botanical contributions to the Royal Institution of Cornwall have hitherto been for the most part illustrative of the Flora of the County. Reference was made in the last Annual Report of this Society to the ardour with which several of the former members devoted themselves to acquire a knowledge of the plants indigenous to Cornwall. The excellent work performed by these worthy zealots has been ably supplemented from time to time by the labours of Mr. T. A. Cragoe. I am of opinion that the thoroughness of the work thus accomplished leaves little to be done by subsequent collaborators, except perhaps among the Characeæ and fresh water Algæ.

We are not, however, alone in this respect. The time has arrived when satisfied, if not satiated with lists of varieties and species, the Botanist has sought relief and inspiration in the domains of vegetable Morphology and Physiology. It is to the former branch of this subject that I wish to draw the attention of any who may be disposed to enter upon the study of a recent and most attractive department of science.

At the outset it behoves us well to understand that a flower consists of a succession of whorls or rosettes of specially metamorphosed leaves—morphologically identical with the other foliar appendages of the stem—functionally different, and further, that, like other ordinary cauline outgrowths these rosettes of floral leaves grow in what is styled an acropetal order:—that is, the more remote any whorl of leaves is from the apical point the less recent is it in regard to its appearance. The plan of a horizontal section of a flower will facilitate the conception of these two principles. See Diagram I. Proceeding from the periphery to the centre we have four zones of leaves which succeed each other in the order of their development.

The following passage occurs in Sachs' "Text Book of Botany," (p. 531):—"One of the most remarkable deviations from the general rule of the order of development of the floral

whorls occurs in Primulaceæ, where five protuberances appear on the receptacle above the Calyx, each of which grows up into a stamen, while on the posterior or lower side of the base of each primordial stamen a lobe of the corolla subsequently appears."

"The flowers of Primulaceæ would therefore be strictly apetalous in the morphological sense of the word, since their corolla is not a true floral whorl but only an outgrowth of the staminal whorl." On reading this statement I was struck with the peculiarity of the circumstance, and determined to investigate the subject. I have examined the flower of *Primula* in its earliest and subsequent stages.

It will be seen by referring to sketches from my note book (Diagram II) that at a very early period, when the bud is but little larger than the ordinary full-stop (•) the anthers have precedence of the petals. This advance continues till the bud has grown to the size of a pea when the petals have overtaken the anthers and their apices are at the same level. The sepals, however, arise in their normal order anterior to either petal or stamen. The anther now, having its lobes swollen with pollen and its form determined, is carried upward by the corolla sheath, which soon attains its full size. So far as my observation goes, the petals are not simple appendages of the stamens, as described by the renowned German Botanist, notwithstanding they both seem to originate in the same zone of tissue. Hence the flower of *Primula* cannot be regarded as apetalous.

Extending my researches to other flowers, I find that the partial arrestation of the corolla and the precocious attitude of the Andræcium are phenomena of a, by no means, exceptional character. Indeed, from the abundant examinations I have made of young buds, I am led to believe that the backwardness of the coronal members is of frequent, if not of general, occurrence. The following genera may be referred to at this season as attesting the correctness of the above remark, *Ranunculeæ*, *Resideæ*, *Veronieæ*, *Chelidonium*.

There is another point in connection with the development of the stamen which claims our attention, and that is the growth of the filament which does not proceed, *pari passu*, with that of the anther, but seems to wait until the latter organ has arrived at the period of its dehiscence and then shoots up apace.

In looking at a spiral flower, or one with multiple whorls, such as a *Ranunculus* or *Water-lily*, we cannot fail to be struck with the gradual transformation of sepals into petals, and these again to stamens. On the other hand, when we examine a double flower we perceive that the multiplication of the members of the perianth is accompanied with a reduction of those of the Androecium, and the question presents itself—Are we to regard the stamens as modified petals, or, on the contrary, to assume the petals to be stamens, which, having ceased to be polliniferous, have become specialized, and rendered attractive to solicit visitations from the insect world.

Or may we look upon each group as a distinct and independent departure from the typical leaf. In opposition to this view may be placed the fact that the two orders are constantly met with in abnormal forms conversely merging the one into the other. Now the theory of progression from petals to stamens seems more in accordance with the law of centripetal differentiation of parts: Thus for example, bracts resemble foliage leaves more than sepals do, sepals are more leaf-like than petals, and these again more so than stamens. But the fact, that in probably the greater number of cases the growth of the corolla is subsequent and subordinate to that of the Androecium, leads one to hesitate to accept such a theory; and when we remember that in an important division of the vegetable kingdom, the gymnosperms, there are no protective whorls—that in many plants there is a hiatus between the calyx and androecium, in which the corolla is either wholly absent or represented by staminodes, infertile stamens, we are disposed to look upon even the bright and gorgeous corolla as a sort of afterthought of nature, a contrivance of the organism to render more effectual the fertilization of the ovule—a device by which the perpetuation of the species is sought to be secured by the direct intervention of insects rather than by the fortuitous action of atmospheric currents.

If we now enquire what is the nature of the transformation of one member into another, we perceive it to be in the first place a sort of atrophy. A suppression of the leaf blade, and in the next place the production of a powdery substance within certain cavities of the leaf stem.

Following up this idea of the typical unity of the several floral appendages, Morphologists have endeavoured to recognize in the stamen parts corresponding respectively to portions of the petal:—Thus the filament is taken as the homologue of the claw or petiole, the anther is supposed to represent the blade, the cavities being formed by an involution of the same, and the line of dehiscence a suture made by the connivence of the margins. And it may be admitted that this homology is supported by the appearance of a section of a mature anther (see Diagram IV) and further, by analogy with the ovary in which the inflexion of carpellary leaves is often sufficiently obvious.

But however specious a theory may be, unless it can stand the test of direct observation it is liable to be questioned. The writer of the article on Botany in the present edition of the "Encyclopædia Britannica" says "The homologies of the stamen are not yet satisfactorily made out." And if any one will take the trouble to examine an anther in its initial stage he will see that there is no appearance of a leaf-blade (see Fig. V). What he will see is an oval body having a dark line in the centre, and on either side a slight protuberance rendering the central part somewhat concave. A section under the microscope reveals the dark line to be a bundle of fibrous-vascular tissue, and the swollen spaces to be caused by the already commencing formation of pollen. Another section of a more advanced anther will exhibit a septum separating each lobe into two loculi, thus constituting the ordinary quadrilocular anther. This partition wall appears to me analogous to the well-known septum seen in the ovaries of the Cruciferæ. In the case of the bilocular anther, characteristic of some species, it is believed that the septum has been absorbed, but may it not also have been aborted?

The dehiscence of the anther is easily accounted for on the hypothesis of the follicles being formed by connivent leaf margins, as then the cohesion of parts would be but slight and easily sundered—but, rejecting that plan of making the follicles there are two ways of explaining the openings; we may suppose the longitudinal slit to be caused by absorption or by the walls being ruptured by the swelling pollen along the line of greatest tension and least resistance. I have not yet been able to arrive at a conclusion on the subject.

The origin of the sacs in the way I have now described, implies that pollen is homologous with the mesophyll of the leaf, whereas their formation by involution of the blade would indicate that substance to be a product of the epidermal tissue—an idea certainly more in keeping with the origin of reproductive cells in general. But as a matter of fact the pollen can be plainly seen—an interstitial mass of cells lying within the walls of the anther lobes, and I have not come across a single instance in which I could detect an epidermal cell dividing into pollen cells.

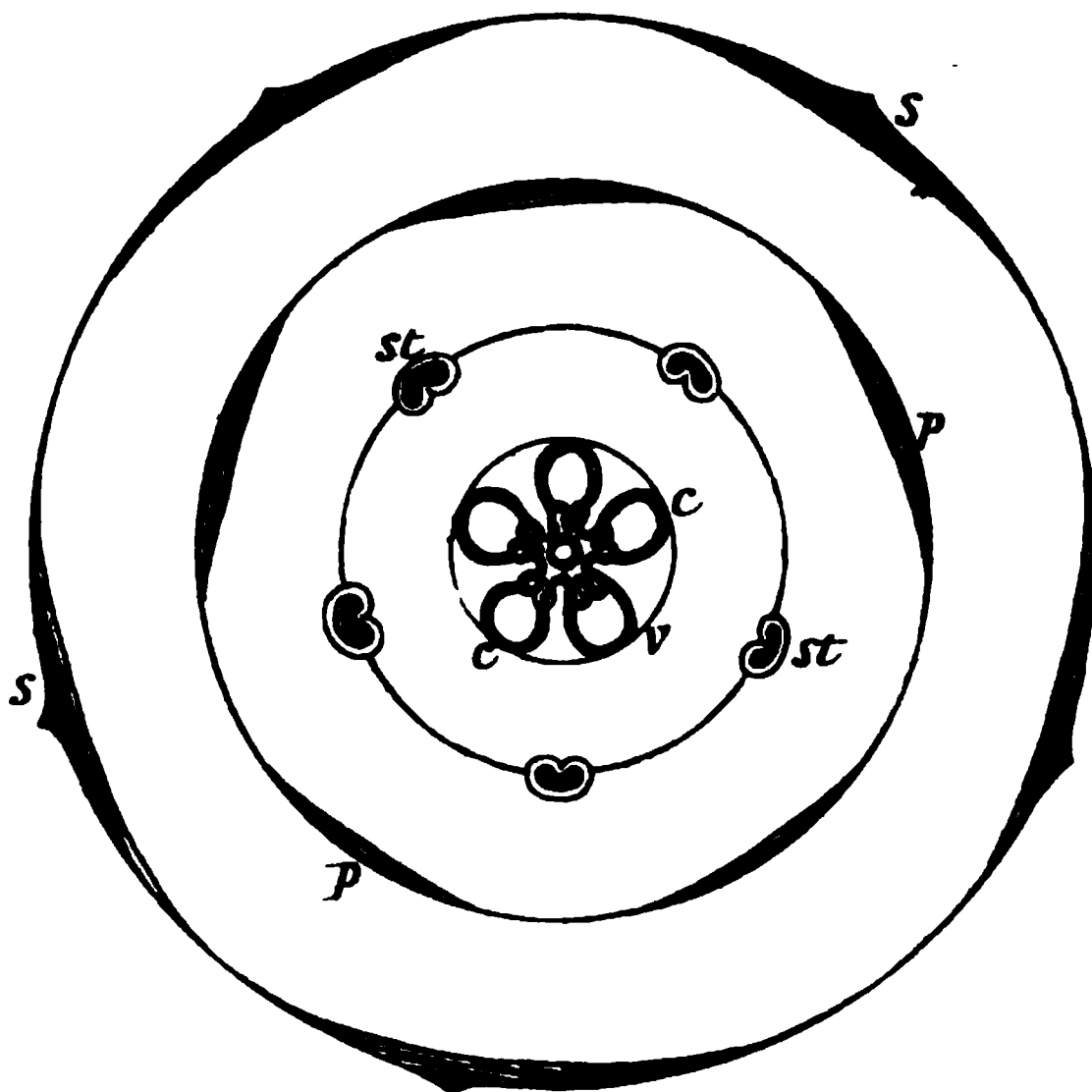
Now, if these observations of mine are correct, it is hardly likely that they will refer to an isolated mode of development. There should be found analogous instances of the conversion of parenchyma into reproductive tissue, and I believe that from among the vascular cryptogams and the gymnosperms we shall be able to cite cases of the production of spores in a manner similar to that we have already explained.

Speaking of the Sporangia in *Selaginella* and *Lycopodiaceae*, Sach says (page 415), "The youngest rudiments of Sporangia which I could detect, but which I have frequently examined, have the appearance of broad protuberances of the upper side of the young leaf . . . . Even in the youngest stages there can be recognised beneath the swelling of the epidermis a layer of cells out of which, as the growth of the protuberance advances, a spherical group of larger cells is formed, which divides in all directions to form the mother cells of the spores."

The sporangia of the *Equisetaceae* bear a striking resemblance to the young anther, and here again the mother cells of the spores are formed out of the internal tissue. Referring to the *Cycadeae*, Sach says (page 440), "The mode of development of the pollen sacs and pollen grains was till lately unknown—it has only been quite recently observed. The pollen sacs are formed on the underside of the stamens in the form of small papillae, probably consisting from the first of several cells over which the epidermis of the leaf is continuous. The *inner tissue* is next differentiated as in the sporangia of *Lycopodiaceae*, *Equisetaceae*, and *Ophioglosseae* into an outer layer of smaller cells enclosing a larger celled layer."

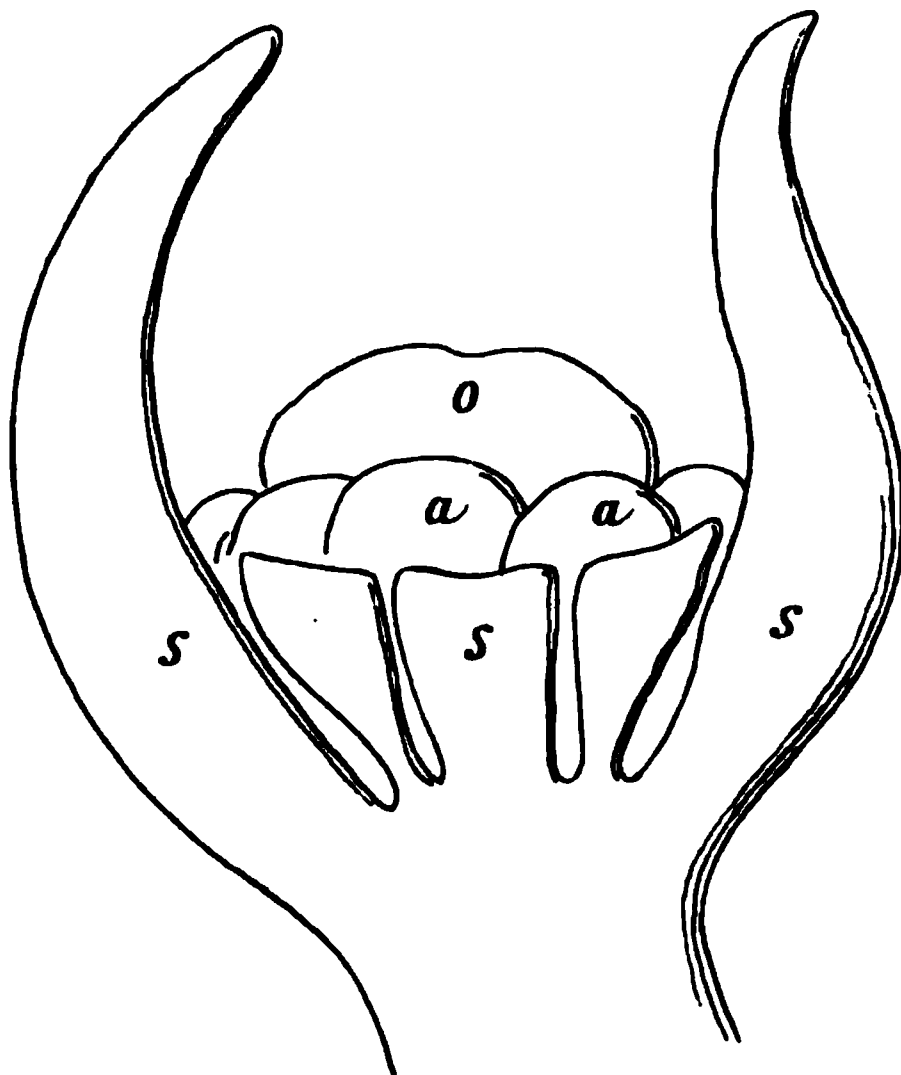






*DIAGRAM 1 — Plan of a Tetracyclic Flower*

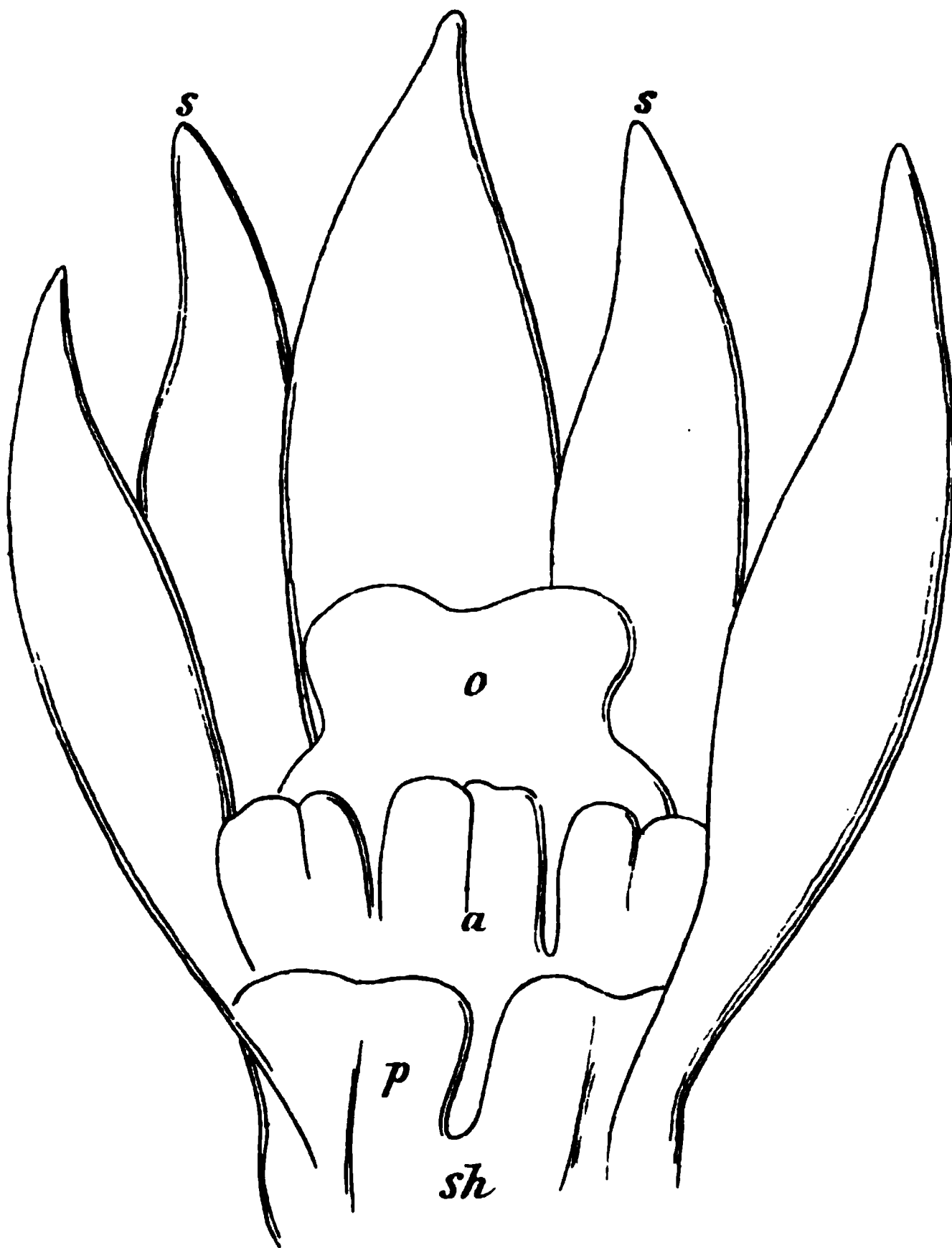
<i>s</i>	<i>Sepals</i>	<i>c</i>	<i>Carpels</i>
<i>p</i>	<i>Petals</i>	<i>v</i>	<i>Ovary</i>
<i>st</i>	<i>Stamens</i>	<i>o</i>	<i>Ovules.</i>



*DIAGRAM 11, Highly magnified view of Bud of Primrose (natural size.)*

*s* — Sepals, relatively large,  
*a* — Anthers — mere protruberances. (Petals not visible at this stage.)  
*o* — Ovary.





*DIAGRAM III Highly magnified Flower of Primrose  
( natural size ♀ )*

- 
- s* — Sepals (Lower parts of some removed)  
to show the inner whorls  
*o* — Ovary  
*a* — Anthers  
*p* — Petals  
*sh* — Staminal and Coronal Sheath

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Fig. 1.

Fig. 1.

*DIAGRAM IV. — Sections of Anther of Cochlearia Officinalis  
in Early (Fig 1) Middle (Fig 2) and Mature (Fig 3) stages*

*d. — Point of Dehiscence      s. — Septum partly absorbed  
f. — Fibro-vascular bundle    e. — Epidermis  
n. — Endothecium              p. — Pollen.  
P. — Parenchyma*



*Fig. 1.*  
*Ventral*



*Fig. 2.*  
*Dorsal aspect.*

*DIAGRAM V.—Anther of Ranunculus ficaria*  
*The filament has a pyramidal appearance with a median ridge*

---

*DIAGRAM VI.—Sporangium of Selaginella*  
*after Sack*





Again, in examining the stamens of the Coniferæ, Pinus, Taxus, &c., we cannot fail to observe the general resemblance they bear to the Sporangia of the higher Cryptogams and the anther of the Angiosperms (See Diagram VI).

The similarity in the essential features of the development of the anther to that of the Sporangium, is interesting from a genetic point of view, as it contributes another link in the chain of evidence which connects, through a long line of descent, the flowering with the non-flowering—the higher with the lower forms of vegetable organization.

To summarise, the points in the structure and development of the anther which I have endeavoured to elucidate are these :

- 1.—The precedence in the early stages of the anther to the petal.
- 2.—The later growth of the filaments.
- 3.—The formation of the pollen sacs by intumescence.
- 4.—The substitution of the mesophyll of the leaf by pollen cells.

NOTE ON THE DESTRUCTION OF ARWENACK DURING THE  
CIVIL WAR.

By H. MICHELL WHITLEY, F.G.S.

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The fine old Mansion of the Killigrews, Arwenack, rebuilt according to Hals in 1571 by Sir John Killigrew, and reputed then to be one of the finest houses in the west parts, was destroyed by fire during the Civil War, at the time of the siege of Pendennis Castle, but by whom, two different accounts exist.

Tonkin, our Cornish Historian, says, "Sir John Killigrew, of this place, ought not to be forgotten, who, seeing the Parliament Army to prevail everywhere, with his own hands set fire to his noble house here, that they might not find shelter in it, when they came to lay siege to Pendennis Castle, as they did soon after: an action which was well rewarded by Charles II. Although the house has not been rebuilt, a few rooms only being fitted up just to receive the family, who have not much resided in it ever since."

In the Manuscript history of the Killigrew family from the pen of Martin Killigrew, it is stated that the malicious and envious governor of Pendennis burnt the fine house of Arwenack; and this account is corroborated by a letter from Truro dated 19th March, 1646.

These two conflicting statements have gone down hand in hand in Cornish History, Tonkin's story being the more generally adopted, even at the present day. But as Sir John Killigrew died some years before the date at which Tonkin states he set fire to his own home, it is evident there is some mistake in his account.

It therefore becomes a matter of interest to settle finally this doubtful point, and fortunately amongst the Royalist Composition papers, preserved in the Public Record Office, is a set that gives conclusive evidence in the matter.

These documents, which are of great interest, are appended to this paper, and they clearly give the facts, which are as follows:—

Arwenack at this time was the property of Francis Bluett, in right of his wife Dame Jane Killigrew, whose jointure it was—(the widow of Sir John Killigrew, who died in 1636, and

the heroine of Hals story about the plunder of the Spanish ship—a story which I have in a former paper shown to be in many respects inaccurate and not to apply to Dame Jane at all). From the certificate of the inhabitants of Budock, it is evident that the Civil War brought ruin in its train to the owners of Arwenack, for Francis Bluett and Dame Jane are described as being in great poverty, and in the former's petition to Parliament for leave to compound for his estates, he describes himself as having no personal property.

The house itself, it is distinctly stated, was burnt down to the ground, together with all its stables and outbuildings, by the garrison of Pendennis Castle, on the approach of the Parliamentary forces, in order that it should afford no cover to the enemy.

But the damage and loss did not end here, for the besiegers completed the work the defenders had begun.

The timber and woods were cut down, trenches and batteries were formed in the grounds, the fences were broken down, the enclosures thrown open, the gardens and Park made an utter waste, and all the lead pipes and conduits spoiled and taken away, the whole damage being estimated at £2,000.

And these facts are vouched for, not only by the inhabitants of Budock, but also by George Mothe, by Phillip Risenbeck, of Penryn, "Minister of Gods Word," and by Colonel Fortescue, the Parliamentary Governor of the Castle.

It was to be expected that the Garrison should destroy any house likely to afford cover to the besiegers, and these documents confirm the Manuscript History of the Killegrew family, and must finally set at rest this question.

---

To the right Hon<sup>ble</sup>. the Committee for compounding with delinq<sup>ts</sup> att  
Goldsmiths Hall London

The Humble petition of Francis Bluett of Trevethan in the Countie of  
Cornwall

Sheweth

That your petitioner hath adheared to the Kings fforces in the late warre  
against the Parliament by whiche means hee is become a delinquent

Therefore your petitioner humbly prayeth, having taken the Nationall Covenant and legative oath that he may be admitted to a favourable composition according to the particulars of his estate hereunto annexed

And your petitioner prayeth  
BLUET.

28 Jan 1647.

Rec<sup>d</sup> and referred to the  
Sub-Committee.

A p'ticular of the reall and personal estate of ffrancis Blewett of Trevethan in the Countie of Cornwall

He is seized in, right of Dame Jane Killigrew his wife of a ffranck Tenement with thappurtenances during his life being her jointure shee being aged 64 yeares and infirme of and in a fferme called the Barton of Arwenacke lyeing and being within the parish of Budocke in the Countie of Cornwall and worth per annum 20<sup>li</sup> 0<sup>s</sup> 0<sup>d</sup>.

is also seized in right of Dame Jane Killegrewe his wife as aforesaid of the like estate of and in a parcell of houses or Tenements parcell of the said Barton of Arwenacke and thereupon erected and built of the yearly value of 16<sup>li</sup> 0<sup>s</sup> 0<sup>d</sup>.

Personall estate he hath none

This is a true p'ticular of all my real and p'sonall estate for which I desire to compound and I do hereby undertake to satisfie and paye such reasonable fines for the same as by this Hon<sup>ble</sup>. Committee shall be imposed in order to the freedome of my estates

BLUET.

This is to certifie that ffrancis Bluett of Trevathan in the County of Cornwall Gent did freely and fully take the National Covenant and subscribe the same

Upon the four and twentieth day of April

Sixteen hundred forty seven the sayd Covenant being administeryed unto him according to order by mee

WILLIAM BARTON Minister  
of John Zacharias London

October the 15<sup>th</sup> Anno dm<sup>o</sup> 1646.

This shall testify that we Edwarde Coode and William Pynter Agents for the Com<sup>ee</sup> of Parliament for the Countie of Cornwall have sette unto Judeth Blewet the Barton of Arwenack for one whole yeere for twentie poundes per ann to be payde

Witness oure hands

by me EDWARDE COODE,  
WILL<sup>m</sup> PAYNTER, Agents

These are to require you on sight hereof to forbear to injure Captn Francis Bluett of Budock in the County of Cornwall either by plundering his house, or taking away his horses sheepe or other catell or goodes whatsoever or offering any violence to his person or the persons of his familie as you will answer the contrarie provided hee be obedient to all orders and ordinances of Parlt given under my hand and sealed at Truro the 19<sup>th</sup> March 1645.

T. FAIRFAX.

To all officers and soldiers  
under my command.

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We the Inhabitants of Budocke in the Countie of Cornwall do hereby certifie all whom it may concerne that ffancis Bluett and the Lady Jane his wife are in greate povertie by reason of the greate and extraordinarie losses which they sustained by the Kings fforces who burned downe to the grounde the dwellinge house of the said Lady Jane called Arwenacke in the saide Countie lyinge under the commande of the garrison of Pendenis Castle together with all the stables and outhowseings thereunto belonging upon the approach of the Parliament fforces before the said castle and much of the Timber and woodes growing upon the said fferme was made use of for the necessary services of the Leaguerthers likewise much of the groundes belonging thereto was broken up and spoiled all the workes and trenches being made thereupon And all the ffences and inclosures broken downe and laid open and waste so as little or no use or profit could or can yet bee made thereof by the said Lady and also they the said ffancis and Lady Jane suffered much loss by the spoylinge of the Leades and Pypes beelinge to the said House, which were all taken up and carried away together with diverse other goods all to the value of 2000<sup>li</sup> and upwardes at the least by the estimacion of us the inhabitants there In witness whereof wee have hereunto severally subscribed our handes this 24th day of May 1647.

Christopher Cumin  
William Tom  
Christopher Lee  
..... Atkins  
William Lekye  
Roger.....  
William Furan

William Elliott  
Crisford Young  
John Langham  
Thomas Babb  
John Jewelde

A similar document sworn by

Philip Risenbeck of Penrin in the County of Cornwall Minister of Gods word

---

George Motye of Newlyn in the County of Cornwall gent maketh oath that the Kinges forces of the Garrison of Pendenis Castle burned the house of Arwenacke, and spoyled much of the tymber growing upon the Barton of

Arwenack, and also much of the land And that when the Parliamentary forces came there they cutt downe very muche and almost all the timber left upon the lande to make workes laide waste the hedges and toake away the leades of the s<sup>d</sup> house and water courses the whole spoyled and losses amounting to in this deponents opinion worth at least 2000<sup>l</sup> by reason whereof the Barton is but of a small yearly value all which were the goodes and estate of Mr Francis Bluett and Dame Jane his wife

FRANCIS GEORGE MOTHYE

29 May 1647

Rob<sup>t</sup>. Aylett.

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These are to certifie whom it may concerne that the dwelling house of the Lady Jane Killegrew called Arwenack neare Pendennis Castle with all the stables and outhousings was upon the approach of the Parliament forces before the said castle burnt to the ground by the sayd Garrison, and much of the timber and woods growing upon the sayd farme was made use of for the necessary service of Leagurers likewise much of the ground belonging thereto broke up all the workes and trenches being made thereupon and all the fences and enclosures broken downe and layd upon so as little or no use or profit could be made thereof by the sayd Lady Killegrew the last year and much loss was sustained by the spoyling of the leades and pipes belonging to the said house In witness whereof I have hereunto set my hand this 11th. of May 1647

RICH<sup>d</sup> FORTESCUE

CHRISTIAN REMAINS IN CORNWALL, ANTERIOR TO THE  
MISSION OF SAINT AUGUSTINE TO KENT.

By REV. W. S. LACH-SZYRMA, M.A.

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There is one boast that we in Cornwall can make, *i.e.*, that our Christianity is anterior in a continuous form to that of any other county of England. For one thousand four hundred years, or thereabouts, it would seem that a majority of the Cornish people have been professing Christians. This can be said of no other county, unless it be Devon, which possibly shared Cornwall's continuous Christianity from an early date, though the evidences of it are not so clear as in the case of West Cornwall.

It should be remembered, of course, that there was a British Christianity which dated from a very early period—certainly from the time of the Dioclesian persecution, from the age of St. Alban, the proto-martyr of Britain, and the age of Constantine the Great—but this Christianity was almost, if not quite, stamped out in most parts of what we now call England, by the invasion and conquests of the heathen Saxons, at an early date, and a large portion of England, indeed nearly all of it, was for several generations bound down in the heathenism of the Teutonic Saxons and Angles. Cornwall, by retaining its independence, retained its Christianity, until the period when the Saxons themselves were converted by the labours,—partly of Saint Augustine's successors, and partly by Brito-Celtic missionaries from the Scotie monasteries of the North.

In Cornwall, on the other hand, the missionaries of S. Patrick from Ireland seem (and at a somewhat later period, *i.e.*, the sixth century, with the aid of their Welsh and Breton co-religionists, of the Brito-Celtic Church) to have at an early date established Christianity over a large portion of Cornwall, as was ably proved by our ex-President, Mr. W. C. Borlase, M.P., in his presidential address to our Society of 1878.



I shall not, on this occasion, retrace the line of argument so ably laid down by him on that occasion, but I would suggest that we probably have in this County,—cut in our almost imperishable granite, Christian remains of a period anterior to the time of the landing of S. Augustine.

1.—The interesting tomb of the sixth century of “Silus,” in the chancel of St. Just-in-Penwith. This is at the latest of the age of St. Augustine, and possibly anterior to him. The carving of the letters seems Early Christian, and might well belong to the age of the fall of the Western Empire.

2.—The “Labarum of Constantine,” curious to say, is not three miles off from the famous Constantine stone, in St. Hilary Church yard; it is on a granite stone, which has been built into the south wall of the porch of Phillack Church. It is a record worth noticing by antiquaries.

3.—The recently discovered stone at Gulval, which, if of the period of S. Uny, (as has been suggested) would be of the latter half of the fifth century. This stone was visited by our Institution at the last excursion, in 1885.

4.—The famous church of Perran-zabuloe—possibly an oratory of St. Piranus himself,—which may be one of the most ancient rural churches in Western Europe; for country churches of over 1,000 years are exceedingly rare, as they were in most parts of Europe built of perishable materials at that time, or have been nearly all destroyed (accidentally or intentionally) in the lapse of ages.

5.—The less famous but scarcely less ancient oratory or church at Gwithian (like Perran, dug out of the sands), which probably was the original chapelry of S. Gwithian, built at a period a little before the time of S. Martin's, Canterbury, the oldest parish Church of England (which though now fairly restored has suffered much from mediæval and modern renovations).

I would suggest to the Society whether special care should not be taken to hand down to posterity the two latter remains of a remote Christian antiquity. The three former are, I believe

and hope, pretty safe, as existing in consecrated ground; but I fear that unless more is being done to preserve them than is being done at present, the two very ancient Churches of Perranzabuloe and Gwithian may be destroyed in time. This I would throw out as a practical suggestion. The theory I advance is simply this, that in Cornwall we have some of the most ancient Christian remains (as well as secular curiosities) now existing in England.

ON THE OCCURRENCE OF FLINT FLAKES, AND SMALL  
STONE IMPLEMENTS, IN CORNWALL.

By FRANCIS BRENT, F.S.A.

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Possibly there are but few localities on the moor lands of Cornwall, or along the coasts where (on diligent search) the traces of a primitive occupation might not be met with, in the occurrence of the early implements of a stone-using people, yet such search has never been systematically carried out, and hence the records are not numerous of the finding of flint Implements in any quantity. It may therefore be of value that some of the localities should be noticed, without referring to the grave-finds recorded by Mr. W. O. Borlase, in *Nænia Cornubiæ*.

On the sea beaches along the coasts, flint in the form of water-worn pebbles, or of fractured pieces, is frequently met with;—this is probably either the remains from ballast of ships that have been driven ashore; or has been brought by the sea from the Chalk cliffs of Seaton and Sidmouth, or from the Greensand of Haldon above Dawlish.

Where flint is met with, in most other cases, it usually consists of flakes. &c., more or less perfect, and fragments, all indicating, to a certain degree, that they have been manipulated by man, and, consequently, that they are either his ancient weapons or implements, or are the waste pieces that have been struck off by the artificer during their manufacture, and abandoned as useless on the sites of old villages or camps.

Some of these, from long exposure on the waste lands, where the soil is thin, are much weathered and nearly white, presenting almost the appearance of porcelain; others, from similar causes, have lost all traces of freshly quarried flint, and look like crackle china, whilst they are so decayed that they crumble under the touch like rotten chert. Others again are as bright and translucent as on the day when they first left the hands of the artificer. These latter are rarely to be met with, except in the deep bog-lands, where they have been buried in wet peat from the time when they were lost, and have consequently been retained in the condition of flint as originally deposited in the Cretaceous rocks.

In noting the following localities, it must be understood that the record is necessarily very incomplete, but other workers in the same field may be induced to communicate their own experiences, so that in time the county may be mapped out with records of flint-finds, as has been the case in regard to some other districts.

**MAKER.**—For the purposes of this notice Maker may be considered as part of Cornwall, and, taking this station as the most easterly in the county, it is to be recorded—That flint implements and fragments of flint are found in considerable quantity on the summit of the porphyry hill, near to the old Fort, in the thin soil that covers it, from which they are turned out by the rabbits in burrowing, and are sometimes washed down by the rain, on the sides of the adjoining gully. The Maker flints, like those at Staddon, on the opposite side of Plymouth Sound, comprise almost all the recognised forms of the smaller implements, such as flakes, scrapers, knives, sling bullets, &c., with cores and many fractured pieces, indicating that the implements were made upon the spot from flint brought from a distance, so that, in all probability, there was once a village upon Maker heights, as well as upon Staddon, although no traces of hut circles or buildings are now to be met with.

**RAME HEAD.**—Within the entrenched portion of this headland I have found a few fractured flints, as well as along the coast to Down Derry; and on the hills above Lower Tre-gantle, and in the cultivated fields near St. Johns, they are occasionally to be met with.

**THE LIZARD.**—Throughout the Lizard district, and more especially on Kynance Down, flint flakes, &c., are to be met with in abundance; here, owing to the thinness of the soil, they never get deeply buried, and they can be picked up at any time, when portions of the turf are removed: some of the forms are interesting.

**GOONHILLY.**—On Goonhilly Down, Mr. W. C. Borlase found many hundreds of flakes, &c., in the course of a few hours.

**THE LOGAN ROCK.**—Flints occur within the entrenched portion of Castle Treryn, and are also found along the cliffs as far as Tol Pedn Penwith.

**THE LAND'S END.**—On the moors along the coast from Enys Dodnan to the Coastguard station at Sennen, flint flakes, &c., abound. I found in this district almost all the known forms of the smaller flint implements, in all stages of manufacture, with pebbles, cores, and fragments, whilst the material itself has been drawn not only from the Chalk, but also from the Greensand.

**SCILLY ISLANDS.**—On the high land of Tresco, scattered over the surface of many acres, broken flints are to be met with in considerable number. I have never visited this spot, but, through the kindness of friends, I have many specimens collected there—some of these undoubtedly shew that they have been manipulated by man. I have also broken flints from St. Mary's.

**CAPE CORNWALL, ST. JUST.**—On this little promontory I have found a few flakes: on some parts of St. Just Moor they occur in abundance, and I have found some in close proximity to the Mên-an-tol and the Lanyon Quoit.

**PENZANCE.**—Some years since, in turning over the earth that had been thrown out of a barrow recently opened on Lady Down, above Leskudjack, I picked out an elegant flint knife, and a long unwrought piece of flint; both of these presented the appearance of having been subjected to fire, possibly the funeral fire of the interment. I also found several fragments of rude pottery; these, I have no doubt, were parts of the cinerary urn.

**NEWQUAY.**—At Newquay, on the moor near the promontory, are many barrows, some of which have been opened, others have been partially destroyed, and the earth, &c., (of which they were composed) scattered over the Down. I have found here many flakes, also an arrow-head of weathered flint, of rather an unusual form.

**DOSMARE POOL.**—Although no traces of Lake Dwellings could be observed when Dosmare Pool was entirely dry in the summer of 1866, yet the presence of hut-circles, barrows, &c., on the surrounding moor; the five "Kings' graves," one since destroyed, on Bron Gilly; and the vast quantity of flakes, pieces, and some arrow-heads from the peat; would indicate

that there was once a large population in this interesting district.

Owing to their deposition in damp peat, many of the specimens retain their original translucence. A few such were exhibited by the late Dr. Barham at the Plymouth Congress of the British Association, and I have in my own collection many hundreds. A few of the arrow-heads are very beautiful, and consist of leaf-shaped and barbed forms, whilst some of the flakes are more than three inches long, and their edges are as sharp as on the day on which they were made. I have been informed that near to this lake a barrow was torn down a few years since, and in it was found a bronze spear head, some arrow heads of flint, and some ude pottery.

**REDGATE.**—At Whimelford and Nine Stones, on the other side of the Fowey, arrow heads, flakes, &c., have been found; and at Redgate, near the old encampment, the road has been cut through a large barrow. Flakes can be found in the section, and appear as if they had been placed on the earth, after the funeral ceremony, and with the remains of the deceased, over the whole of which the mound had subsequently been raised.

**CHEESE WRING.**—At the Cheese Wring, during some “improvements,” a barrow was destroyed; in it was found a large urn containing more than a hundred spear heads and arrow-heads of flint; judging from two specimens of the latter that are now in my possession, they must have been new and unused when deposited in the urn, which probably contained also the ashes of some chieftain of note.

## NOTES ON THE GREAT MOTHER LODGE OF CALIFORNIA.

By J. H. COLLINS, F.G.S.

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A recent visit to the Pacific Coast on mining business, afforded me the long wished for opportunity of visiting some of the gold and silver regions of California and Nevada. The time at my disposal was short, but I managed to see the lode, and being already somewhat familiar with the gold districts of California from a study of Prof. Whitney's work on the Auriferous Gravels, I was enabled to profit by the short time at my disposal more than would otherwise have been possible. I was particularly interested in the *gold belt*, and its accompanying "Mother Lode," from which these world-famous auriferous gravels have been derived. The following is an outline of the characteristics of this gold belt, which is closely subordinated to the Sierra Nevada, and which perhaps owes its existence to the elevation of that great chain.

The great mountain range known as the Sierra Nevada of California, is bounded on its eastern flank by an elevated plateau of Jurassic rocks rich in silver, and on the western by less elevated subordinate ranges of mica-slate, of highly altered volcanic rocks, steeply inclined, and much metamorphosed Triassic and Jurassic rocks, with few fossils, but rich in gold, and by foot hills of nearly horizontal stratified tertiary sandstones.

The main axis of the Sierra is granitic, rising in many places to heights of 14,000 feet; and the period of its elevation is clearly indicated by the particulars given above, as in the late secondary or early tertiary times.

The metamorphosed Jurassic rocks referred to, consist largely, although not exclusively, of slates and shales. In many places the strata stand about vertical, still more often they dip steeply toward the central axis. Frequently they are but little covered with detritus, and the peculiar weathered outcrops of the slaty rocks, turned up on edge and projecting a few feet above

the surface at intervals along regular lines, are familiarly known to the miners as "gravestone slates." (Whitney,—*Auriferous Gravels*, 44.)

The principal slate belt begins a little to the south of Mariposa Co.—it expands to a width of 20 miles or more soon after entering it, and proceeds northward, with occasional interruptions, to the northern boundary of the State. This belt of slate is known as the Gold Belt. Its surface is greatly diversified into hills and valleys, and most of the valleys are filled, and many of the lower hills are covered, with the gravel deposits which have yielded such immense quantities of gold for the past 40 years, and which have been evidently produced by its extensive denudation. Near the northern boundary of Tuolumne Co., a lava flow of late Tertiary age extends from the flank of the principal range right across the gold belt, covering up and preserving the auriferous gravels; and this is the first of a series of such flows, which are met with in proceeding along the belt to the northward.

The slate belt was certainly metamorphosed before its elevation, but whether it contained gold from its first origin is still doubtful—if so, it was probably so evenly distributed throughout the belt as to be of no economic importance. In the region here in question, it varies from 10 to 30 miles in width, and it is traversed for a great part of its length by what is known as the "Mother Lode," or "Great Quartz Vein,"—a great band of quartzose dolomitic and magnesian mineral, varying from a few feet up to several hundreds of feet in width, and at least 80 miles long, which extends from the centre of Mariposa Co. through Tuolumne and Calaveras to the centre of Amador Co., parallel to the strike of the strata and to the general direction of the main range of the Sierra Nevada. Beyond Amador Co. the lode probably exists, but the gold belt is so much obscured with overlying volcanic rocks, that the Mother Lode has not hitherto been securely traced. Some authorities consider that it turns somewhat abruptly northward through El Dorado and Placerville, while others believe they have traced it on the Grass Valley, and others again to Oroville.

The Mother Lode is in many places, and especially in Mariposa Co., associated with serpentine and talc-slate, as well as with argillaceous slate; and it is specially important on account



of the numerous mines which have been worked, either in the mass of the vein itself, or in its immediate vicinity.\*

Prof. Whitney thus describes it :—"This powerful lode is made up of irregularly parallel plates of white compact quartz and crystalline dolomite or magnesite,† more or less mixed with green talc; and these plates, which somewhat resemble the "combs" of ordinary lodes, are either in contact or separated from each other by intercalated layers of talcose slate. The quartz is chiefly developed in the central portion of the vein; and, from its colour and resistance to decomposition, it gives rise to a very conspicuous outcrop, forming the crest of the hills, so that it can be readily seen from a distance of several miles. The dolomitic or magnesitic portion decomposes somewhat readily, and it becomes a kind of "gossan," or a cellular ferruginous mass, of a dark brown colour, often traversed in every direction by seams of white quartz. The quartz is the auriferous portion of the lode, although it is far from being uniformly impregnated with gold. Most of the mines which have been worked, between the Merced and the Stanislaus, are on the north-east side of the Great Quartz Vein, either in contact with it or in some parallel band of quartz subordinate to, or at a little distance from it. The talcose slate bands in the vein are often, themselves, more or less auriferous." (Whitney, p. 46).

The general dip and strike of the quartz corresponds with that of the enclosing rocks. The most marked exception is seen near Big Oak Flat, in Tuolumne Co., where it cuts diagonally across the beds both in strike and dip. In Mariposa Co., and other places where the quartz is very largely developed, it loses its platy structure, and appears in compact masses of 20, 40, or more feet in thickness. Often, too, it sends off innumerable branches and ramifications into the country rock.

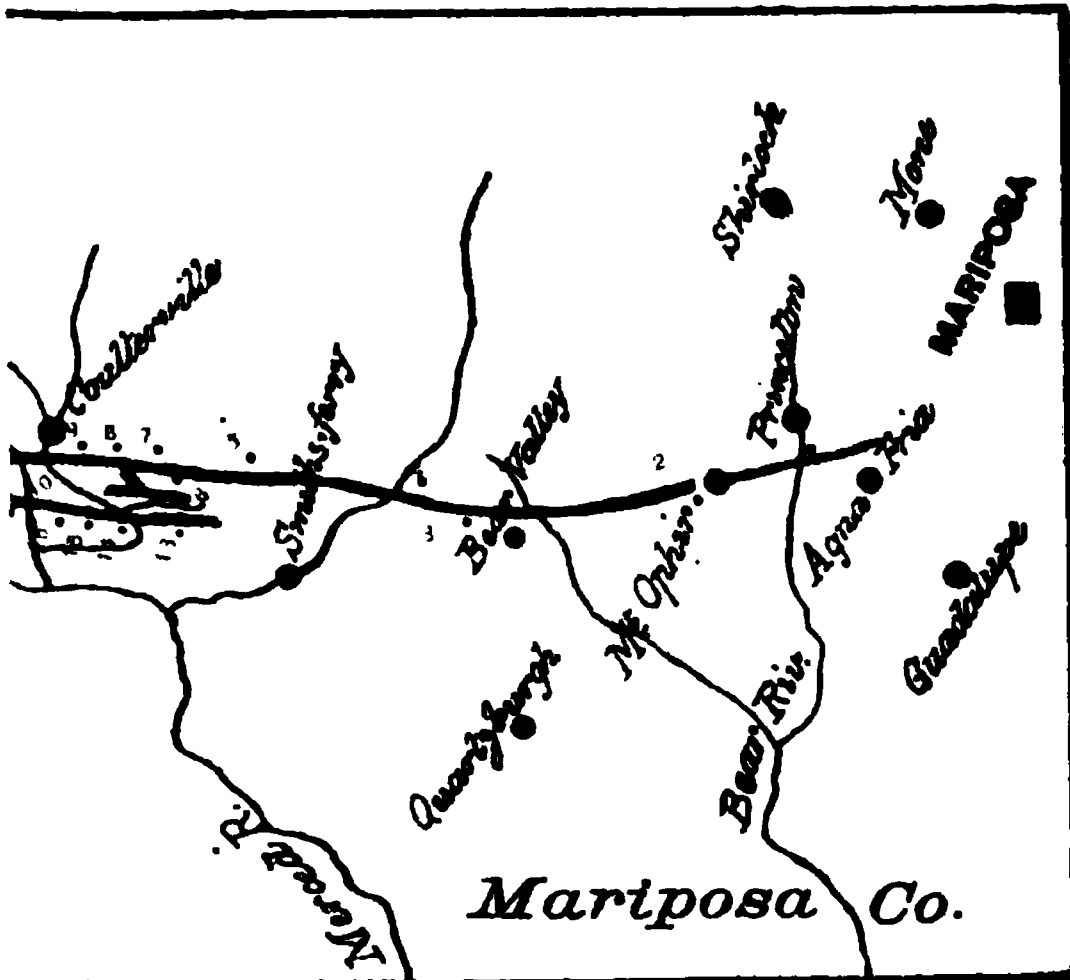
In general the gold occurs in the quartz, as already stated. It is very often accompanied by small quantities of sulphurets,

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\* The annual production of gold in California has a value of about 16 millions of dollars, of which about 8 millions are derived from mines proper, and the remainder from the gravels. The Mother Lode is estimated to yield about 2 millions annually.

† "In the only specimen which has thus far been chemically examined, the supposed dolomitic portion proves to be an intimate mixture of quartz and magnesite."—Whitney.

.A.,



L.  
NCO.  
ANCE.

1. PRINCETON.
2. MT. OPHIR.
3. JOSEPHINE.
4. PINE TREE.
5. VIRGINIUS.
6. DALIA.
7. M. HARRISON.
8. VENTURE.
9. LOUISA.



pyrites, mispickel, marcasite, chalcopyrite, galena, &c., or by oxidised products resulting from their decomposition. They are mostly found to be somewhat auriferous wherever they have been tested, and some of the mines add considerably to their returns by roasting their concentrates and milling them, the free gold having been first taken out of the stamped ore (pulp) by the aid of mercury.\*

Prof. Whitney goes on to say :—" This immense mass is not by any means proved to be a fissure vein, or even an exclusively segregated one. It will require much more study than it has yet received before its real character can be stated with confidence. To the writer it seems from present evidence most likely that it is the result of metamorphic action on a belt of rock of peculiar composition, and perhaps originally largely dolomitic in character." (Whitney, p. 332.)

As to the age of this vein, we can only say with certainty that it is later than the elevation of the Sierra Nevada. This appears from the fact that the quartz itself is rarely faulted or disturbed to any considerable extent, as it must have been had it existed before the uptilting of its enclosing rocks. Nevertheless, the powerful lateral compression to which the belt has been subjected by that upheaval may, on being relaxed, have given rise to the cavities into which the quartz gradually became segregated, together with the gold and its accompanying pyritous matter.

The accompanying sketch map, taken from a survey by Mr. R. H. Stretch of San Francisco, indicates the positions of the principal mines which are now being worked on this lode, or which have been profitably worked in recent times. Many of them are shallow, but some few have been carried down to depths of 1000 feet or more without any signs of the gold giving out.

As to the richness of the vein, of course this varies excessively, as is always the case in mineral veins. In some localities only traces of gold are present, in others many tons of work have been extracted yielding 100 or more ounces to the ton. More usually, however, the milling ore will vary from 3 dwts. up

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\* In a few instances other ores are, or have been, worked in veins situated within a few miles of the Mother Lode—thus telluride of silver ores occur at Modesta Mine in Mariposa, and copper ores at Copperopolis in Calaveras.

to 15 or 20 dwts.. Under favourable circumstances even 3 dwts. can be mined and milled so as to leave a small margin of profit; while almost any mine which is capable of yielding large quantities of 6 to 8 dwt. ore can be made to give good results, even where steam-power has to be employed.

The treatment of free milling gold ores is a very simple process. The ore is usually reduced by means of the well-known and very effective Californian stamps so as to pass through a No. 30 grate. In some instances mercury is placed in the battery, but whether this be so or not, the pulp on leaving the battery passes over amalgamated copper plates, and subsequently over either riffles filled with mercury or over blankets. The amalgam is "cleaned up" from time to time and retorted, yielding in most instances gold of remarkable fineness. When the sulphurets also are treated they are concentrated from the first tailings on Frue Vanners, or other suitable machines, roasted, and then ground with mercury in an iron pan. In this way a second portion of amalgam is obtained, which is sometimes of very considerable value. The chlorination process is also in use for the treatment of tailings in some places.

The miners employed are of various races. Of course the ubiquitous Cornishman is often met with, and I also came across Germans, Italians, Irish, Swedes, Norwegians, Mexicans, and a few native born Americans.

The wages paid at present are from 2½ to 3 dollars per day; but as the cost of food, lodging, and clothes is much higher than at home, the men are not very much better off than they are in Cornwall.

**THE APPLE-TREE.**  
By THOMAS CRAGOE, F.R.G.S.

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The genus *Pyrus* of the natural order *Rosaceæ* comprises the Pear, Crab-apple, Beam-tree and Mountain-ash, natives of Europe, N. Asia, mountains of India and N. America.

The Apple-tree, *Pyrus malus sativus*, has occupied a very distinguished place in the annals of the human race, more especially among northern nations, and most especially, perhaps, in Britian, the native home of the Crab, from whose austere and ancient stock have proceeded all those mellow varieties of ruddy and gold which adorn our orchards to day, and which have accompanied the mighty offshoots of the Anglo-Saxon race to the far off corners of the world—to the Southernmost point of Africa—to the shores of the Austral Isles—and to the interior spaces of the Great Western Continent.

In the slowly revolving æons of time, nature working upwards to a higher and higher degree of perfection, the apple, like the butterflies and flowers, must have been a later product of our teeming globe.

In the thick, gloomy, light and luxurious vegetation of the Coal-Measures, no Apple-Tree reared its fruitful head among “seedless ferns that rivalled forest trees in stature.” No! this was a dower of wealth and beauty reserved for a later epoch, yet, so remote is that epoch that the origin of apple-tree culture is lost in mist.

True it is that the Ancient Britians are said to have had orchards, and still more certain is it that the Romans cultivated the Apple Tree, which was not unknown to ancient Greece, and flourished according to Homer in the pleasant gardens of Alcinous and Laertes, whilst Philip of Macedon and Alexander are said to have had apples to their banquets all the year round. Moreover the fabled garden of the Hesperides, whence came the golden apples by which fair Atalanta lost the race and won a lover, with all the manifold allusion to this fruit in the ancient

mythologies and in classic song, all clearly indicate that the culture of the apple was coeval with the dawnings of civilization and the progress of mankind.

The Romans had twenty-two varieties of apples called by noble names. Pliny mentions 29 sorts cultivated in Italy about the time of the Christian Era. He says "our best apples will immortalize their first grafters, such as took their names from Manlius, Cestius, Claudius, &c." Alas! for apple glory. Where now are these boasted sorts? Their very names are forgotten, or found only in the chronicles of the past, overlapped by the dust of centuries.

Nature through her wide domain works with an even hand, and as it is with the race of man so is it more or less with all organic structure. Where now are the lineal descendents of the Arundels, the Trevanions, the Godolphins—are they not all gone?

And of the illustrious Milton, Shakespeare, and Dryden stocks no scion remains.

" Are God and nature then at strife,  
That nature lends such evil dreams ?  
So careful of the type she seems,  
So careless of the single life ;  
' So careful of the type ' ? but no.  
From scarped cliff and quarried stone  
She cries, " a thousand types are gone."

And not to speak of old Rome, the apples which ruled the markets of mediæval England are no longer remembered by name, and are extinct even in the chronicles. Yet orchards are mentioned in the charter of King John, in whose time Worcester was famous for apples. So, too, in earlier times, was ancient Glastonbury, where Arthur was buried in the Vale of Avalon.

The oldest variety, so far as records go, is the Pearmain, though some have assigned the place of honour, in age as in excellence, to the Golden Pippin, and it appears that the Costard apple (which gave a name to the Coster-Monger) was extensively grown in the reign of Edward the 1st.

During the wars of the Roses orchards fell into decay, but revived again in the time of Henry the VIII, when several valuable kinds were introduced from Flanders, that ancient and historic home of gardeners, merchants, and manufacturers, and

some of those pippins were planted by Lord Maschal at Plumstead, Essex. Tusser, in 1573, names many sorts. Gerard in 1597, in his folio History of Plants, mentions seven kinds of pippins. Evelyn says in 1685, "at Lord Clarendon's seat, at Swallowfield, Berks, there is an orchard of 1000 golden and other cider pippins. In 1688 that eminent naturalist John Ray, who explored the kingdom of nature with arms of precision, enumerated 78 varieties of apples near London. Of these ancestral sorts which distinguish the epoch of the Revolution, it would be interesting to know how many remain! yet the apple is long lived too, and of the harder sorts a tree often lives through two centuries.

There was a Genneting mentioned by Evelyn in 1660. The original tree sprung from pips brought from Normandy sown at Ribston in York. Five grew, out of which two were crabs. One was a famous pippin: the original tree planted in 1688 was blown down in 1810, and continued to bear horizontally till 1835.

We learn from the Gardeners' Chronicles of the latter end of the last century, that the varieties of apple were multiplied to some hundreds, yet not above 40 or 50 were then contained in the catalogues.

Among the dessert apples the Golden Rennet, the Margil, and the Nonpareil remain, but from the West the Embroidered Apple, the Silver pippin, and the White and Red Calvilles are gone, and though among the kitchen fruit which opened the century the Kentish Pippin remains (in Kea), the Summer Marygold is perhaps no more heard of; but relics of the old Trelawny and Sweet Oaken Pin survived at Woodbury until about five years since, when the last venerable tree went down.

The Golden Pippin, the once hardy Cider-Apple of the Gloucester and Hereford orchards, has long been declining in England, and our forefathers' favourite—that delicious, white, mealy, October apple, the Old Edward of the Cornish orchards, has almost passed away. This was an ancient seedling of rugged bark, swelled joints, and wild uncultured outline, possibly by offshoots a relic from the Plantagenet times! for although, among the cultured varieties, grafting renews by imparting a temporary vigour, it seems powerless to preserve the sort, as the scion always inherits the lease of life first accorded to the stock.



In the face of experience there can be no doubt of the truth of Knight's theory that any given variety of fruit can have but a limited period of existence; that varieties must necessarily run out and disappear as it were, by exhaustion.

It is a fact that old kinds are most diseased, that "those apples which have been long in cultivation are on the decay. . . . and the fruit like the parent tree is affected by the debilitated old age of the variety.

If Lindley and others oppose this conclusion, seeing no reason why a tree, in itself or in its scions, might not be sempiternal, and point to the seeming regeneration of the Golden Pippin upon the mountain slopes of Maderia 3,000 feet above the sea, it might be replied that though relinquishing the analogies in animal life, we are everywhere confronted with corroborative facts from the book of nature—in so far as nature has been subjected to culture; as for the Black-Thorn and the wild Ass's colt, they may remain much the same through all the 25,000 years of the great Platonic period.

The references would be endless: we need only example the potatoe; steadfast to its primitive type in the Mexican Cordilleras, it wantons into varieties which die out in cultivation. Look at its record in recent times. Where now are the Golden Dons, Pink Ladies, Nankins, and Blue Farmers of our boyhood? They were as good as any since, but they are gone from the face of the earth.

The early French settlers in N. America were renowned planters, and they left their marks from the St. Lawrence to the Gulf of Mexico. Among the first attempts to civilize the Indians, apple culture was by far the most successful, indeed they would take to nothing else kindly, and until lately mossy relics of Johnny Apple Seed in many an old Indian orchard down by the fertile springs of Maryland and Virginia, and the forgotten hunting grounds of the Cherokees, were still remaining.

The haughty and unscrupulous Catherine of Russia, who gave a jewelled snuff-box to Sir Josuha Reynolds, was extremely fond of English Pippins, though that might have been nothing more than a woman's whim, for the Queen of George III, was accustomed to received annually a particular kind of apple from Germany called from that circumstance "Queen's Apple."

Forsyth's list, published in 1803, comprises over 200 varieties with winsome titles, most of which have dropped into oblivion.

In this Catalogue and other works frequent reference is made to Cornish Apples, from which it may be reasonably concluded that in spite of wild coast and barren moorland, there is something in the Cornish vales, and in the softer clime, favourable to the development of the apple. 'Tis true this fruit will grow in higher latitudes than any other; so far north indeed as Drontheim in Norway, say  $65^{\circ}$ , or it has been observed to grow wherever the oak will flourish.

But then the apples of these high latitudes are crabbed, and hard and small. There is in this respect a very striking difference between the south and north shores of our own county.

Both apples and plums are grown in some of the many valleys flanking the N. Coast of Cornwall, but they are not comparable to those which gather the rays of the sun on the banks of the Fowey and the Fal.

The apple tree is found in the higher regions of Palestine, but it finds a very genial home indeed in the mountainous and fertile island of Eubœa in the Grecian Archipelago.

Perhaps some of the largest Apples ever brought across the Western Main was a private sample which reached Truro this winter from beyond the Rocky Mountains, the first fruits of the untamed lands of Oregon, where, in that new Hesperia, we may suppose majestic orchards of colossal trees slope to the setting sun.

Hot summer climes like Canada and the United States, mature apples to a great size and beauty. And supreme among all the many varieties, according to a general consensus of opinion, is the Newtown Pippin, an American sort mentioned in Forsyth's catalogue in the beginning of the century, and said to have originated in Devonshire. But sooth to say many men have many tastes, and the Ribston, the Woodstock, the Golden Pippin, the Nonpareil, the Sop in Wine, and the Cornish Gillyflower have all been classed A1; and but a few days since an elderly gentleman declared to the writer of this paper that Cox's Orange Pippin excelled the lot!

But we must never forget that comparisons are not fair unless the conditions are equal, and many apples that rule the roast at home (wherever that home may be) do but poorly abroad, so poorly that "a mother had not known her child"!

The Ribston for instance (which we have found very "coy and hard to please" in Cornwall) is not a favourite in American orchards, but there it is not quite the same apple, and the famous Newtown Pippin comes to perfection only on Long Island and the banks of the Hudson. Yet we must recognise that change is the key to progress, and where it fails in one instance it may succeed in many. Now although the American growers are exceedingly proud of their apples and deservedly so, yet there is one fact which needs to be explained.

N. America is a great and fruitful country, the American wheats are fair and beautiful to look at, but they are not so rich in albumin and some other nutritious properties as the English and Russian wheats.

Again, the American barley lacks the necessary stamina for malting, and I believe in spite of the imposing appearance of the American apple there is little or no cider made over all the Western Continent, from the wintry shores of Hudson's Bay to the Orange groves of Florida, and apart from the value of cider as a commodity, that statement calls for more than a passing notice.

It so happens that this is an inquiry which I have never seen touched upon in the American press, where columns are weekly devoted to the farm; but once upon a time, when wandering in Ontario, I came by a cheerful homestead flanked on one side by a fine orchard, and just then the farmer coming along, I asked him about the cider prospects, not at all knowing from where he hailed. Judge then my surprise when this dear old exile replied "oh! no, there bant no cider here, it hath no body like at home in Devonshire." Is it possible then that in that New World, which is in one sense the land of promise, there is a something less piquant in the soil, which despite the fair outward show of all its products, may lack a certain essential quality and aroma peculiar to older countries?

Is there a sort of analogy between the plump muscles and heavy bones of the old World people and their barley and apples full of stamina?

I confess the thought has often struck me, though perhaps a better and truer explanation of all such phenomena will be found in the climatic affinities and idiosyncracies of plants, for we must remember that the maize of Kentucky and the tobacco of Virginia are unrivalled.

By the way, I once saw Squire Wm. Paxton's orchard on the James river in Virginia, plentifully strewn with refuse tobacco leaf as a manure, and much regreted I would not be there to taste the fruit so aromatically nurtured. Mulching the orchards with seaweed is a common practice in Cornwall, and generally considered a safe one, though Mr. Kendal of Bodrugan and others declare they have sometimes cankered their orchards by seaweed alone.

That eminent authority, T. A. Knight, says he approves of planting potatoes and other low growing crops between the apple trees—with proper manure. However that may be, I have proved that cropping potatoes with farm-yard manure in a plantation of young trees is highly dangerous, for by so doing at Woodbury we lost several very promising young Ribstons. But here is the marvel—while some sorts, including the Ribston Pippin, will canker so treated, other varieties such as the Irish Peach and Pollie Wheatear will thrive all the more, and so if it is not necessary that you should know your nursery-men, you should at least know your trees.

There was some years ago a sort of wilding apple tree at Penhellick growing on the mowhay bank, and against that bank, all unconscious of the tree, there was built up through the winter a great heap of farm yard manure. Now just a few rootlets must have tapped this source, for the Autumn found the old savage laden as with countless lemons of ample size, but notwithstanding they looked so fine and tempting, to the taste they were harsh as ever!

Cider was popular about the beginning of the last century, in opposition to French wines, and about that time Philips wrote a pleasant little poem on cider, imbued with genuine poetic fervour, and however much that beverage has declined in popular favour it is a great question whether the national drink has improved.

There appears to be something very wholesome in the juice of the apple, and it is chronicled as a very significant fact that in 1849 the cholera spared the cider-drinking districts of the West of England in so uniform a manner, that the immunity could be ascribed to nothing else. This drink is of very ancient use in England, and is beyond doubt the sieder of the Britons.

In one sense the juice of the apple is the natural wine of Britain, and when properly made it is perhaps a great deal more suitable to our British constitutions than the fervid wines of the South, so liable to deposit uric acid round the joints in high latitudes, though grateful and innocent enough to the swarthy Spaniard and the sultry Moor. Like to Like! nature has laid down her laws, and the scurvy grass grows where the scurvy prevails.

The cider counties lie in the form of a horse shoe round the Bristol channel, and in the upper part of this circle the old cider fruit, namely, the Fox-Whelp, Red Must, Hagloe Crab, and Brandy Apple are even in Hereford hastening to decay, and are mostly unknown in Cornwall, where perhaps the best cider comes from the Dufflin and other sorts flourishing in the river side orchards of Kea, where three places have been locally renowned for cider, viz: Trevaster, Trethowell, and Woodbury. The old Adam-Sweet, luscious, yellow, and speckled like the Golden Pippin, made the vats flow at Trevaster during the first half of this century, whilst a little red streaked apple called the Sweet Oakin Pin, but not corresponding to Forsyth's description, mingled with a wilding sort growing on ancient seedlings, gave its excellence to Woodbury cider; and Trethowell orchards still boast the Dufflin.

The Scarlet Pearmain rules the far away fruitful orchards of Tasmania, where also, strange to say, "the cider hath no body."

The contemplative author of the *Sylva and Pomona* says:—"nothing contributes more to mens' long lives than the planting of many trees," and "a plantation of orchard fruit" was mentioned by him in his visionary abode of happiness (*vide* introduction, *Sylva*); and "were I," says an eloquent writer, "asked to describe the location of the fabled fountain of Hygeia, I should decide that it was certainly situated in an orchard."

The *Pomona* of the erudite and philosophic John Evelyn was the first comprehensive treatise on orchards and cider. He was the father of Horticulture. How delightfully he discourses! After the manner of Ray, his illustrious contemporary, and of Gilbert White of Selborne, his brother naturalist in the following century, who was born exactly 100 years later than Evelyn.

But what charmed pages are Evelyn's—what sermons to lay the fevered dreams of this restless world! and we owe them all to the intestine broils of the State at that period, which drove Evelyn into retirement at Sayes Court: and this retirement, like that enforced on John Bunyan in Bedford jail, and Raleigh's captivity in the Tower, begot that concentration of mind which gave to the world the *Sylva* and *Pomona*, *Pilgrim's Progress*, and the *History of the World*! Thus do good grow out of evil.

Evelyn's great works were published after the Restoration, but the material was compiled during the years of retirement at Sayes Court.

Concerning the annals of horticulture there is an inexplicable circumstance manifested in the nature of the hawthorn and the apple tree. They belong to kindred families in the same natural division (sub-order pomaceæ) but whilst the thorn, cultivated too, from seed, for centuries, has scarcely developed half a dozen varieties, the variations of the apple tree are endless and almost innumerable, for it may safely be said no man has ever counted them or ever will, for many a good tree is growing deep in Cornish Valleys to-day, unknown to fame and the gardiner's catalogue.

Almost every orchard contains one un-canonised saint! but in the catalogue of the gardens of the Horticultural Society, there are over 1,400 apple trees described, which we may roughly estimate at half the total number in the realm.

To the student of natural history this is most curious,—the amenable or responsive temper of some plants, and the refractory nature of others, even when of the same order! Do we not see correspondences in the animal world? Are there not Wolves and Zebras (things which cannot be tamed) in both kingdoms?

By far the most interesting process connected with apple culture is the cross fertilization from which have accrued by natural and accidental impact some of our best sorts, such as the Woodstock Pippin. But in later years T. A. Knight has reduced this hap-hazard force in nature to an artificial factor and work of precision. And to this simple art we greatly owe the splendid variety of fruit we now enjoy, for by this means a far greater degree of variation is obtained than from pips not crossed, though these will vary from the stock

In the order *Rosaceæ* the fruit may always be safely eaten, yet strange to say the honey bee that revels on the apple blossom never alights on a rose.

The numerous stamens of this great family of plants lie round the pistils,—like the halted caravan on the open plains, where the men lie round in a circle with their women safe in the centre—and the gardiner by removing the native circle of stamens from a very likely flower of a very comely tree of a genial kind, and by introducing ripe bursting anthera from another choice bloom of another choice tree, guarding the while with gauze the emasculated blossom from stranger pollen on the legs of roving bees, may attain results once undreamed of.

Such was the history of the finest plum we have, Coe's Golden Drop, a cross between the Green Gage and the Yellow Magnum Bonum.

It moreover appears that the seedling invariably partakes most of the nature of the parent tree providing the fruitful dust, and the experiment should be made on perfect specimens, for defects are always transmitted. Thus the enterprising gardiner carries the future of his orchard in his hand!

The far-seeing Lord Bacon had a vision of what was to come in "the compounding or mixture of kinds." "Wherefore" says he "it were one of the most notable experiments touching plants to find it out, for so you may have great variety of new fruits and flowers yet unknown. Grafting does it not, that mendeth the fruit or doubleth the flowers but hath not the power to make a new kind, for the scion ever overruleth the stock."

Bradley about a century later (1718) was the first author to speak of the accomplishment of cross-fertilization, which was first practised by the gardeners of Holland and Flanders,

and was in the present century reduced to a science by the experiments of Knight.

Grafting is an ancient art known even to Pliny, the naturalist, and Virgil advises to "graft the tender shoot, thy children's children shall enjoy the fruit." Dwarf trees grafted on the English Paradise stock are certainly more handsome and profitable in small orchards and in gardens. Cleft grafting with the razor-back scion is very successful closed up in soft unctuous Cornish clay. I still preserve among my relics a miniature pattern-graft of this kind, made for me years ago on the high seas from the Ship's broom, by an Editor of the Toronto Globe, who had been a mighty gardiner in his time at the Mount Hope Nurseries, Genessie Co., New York. I saw in Ontario a thriving orchard raised from pips, not a single tree of which was grafted.

An orchard is the symbol of peace and plenty, but perhaps the just value of the apple as an article of diet will in England be more fully recognised by coming generations, when the carnivorous tastes of our country people shall have somewhat abated, as in the upward progress they are sure to do.

Does not the success of the London restaurants, the "Alpha" and the "Garden," point to the time when Pythagoras, Shelley, and Professor Newman's School shall be vindicated?

The learned John Langhorne writes cheerily to Hannah More after supping on roast apple and mulled wine

Workmen in England, in famine times, have done better on roast apples than on roast potatoes, and Dr. Johnson declared that he knew a clergyman who brought up a large family on apple dumplings. If it sounds Apocryphal, see Boswell's "Life."

For winter use apples should be sweated, wiped dry, and packed in large, well scalded earthen jars closed tightly down, when they will keep their pristine qualities for a long time.

It is worthy of remark that nature puts on her gayest dress when performing her most important functions.

I remember one spring day in Virginia, where nothing reminded me of England, where the very soil, uniformly red, looked strange: where the flora and fauna were foreign to my eyes, and where the orchards were dressed not with ore weed indeed but with tobacco! I was curious enough to smell the apple blossom



to know if there were any preceptible difference in transatlantic bloom, and there was absolutely none ! The colour was the same, and the fragrance was the same as that in the orchards of Kea in the olden time, and thus do one touch of nature make the whole world kin.

In White's Calendar we find the 22nd April and the 25th May as the earliest and latest flowering of the apple, and this, among notes on Ashes, Elms, and Oaks, is, I believe, the only mention of the apple in the classic history of Selborne.

I have often noticed that our orchards in Cornwall are at the top of their bloom at the end of the first week in May, but this late spring the middle of May barely saw the orchards in prime. Mr. Ruskin says :—"of all the lovely things which grace the spring time of this fair temperate zone, I am not sure but the blossoming of the apple tree is the fairest."

There is a natural curiosity regarding the origin of trees as there is concerning the origin of families.

The Ribston Pippin was raised in Ribston Park near Knaresborough, from a pippin apple brought from France before cross-fertilization was dreamed of.

The Woodstock Pippin, or Blenheim Orange, was a stray seedling first found in Woodstock Park, and what a mighty progeny has this tree spread over the land !

The Golden Pippin is said to have been raised in Perham Park, Sussex, and though this sort long ruled high in Europe, it has done nothing in America.

The Gilliflower is allowed on all hands to be a Cornish Apple, indeed it is a child of our soft dripping climate, and will not do elsewhere, but I have never heard what particular orchard had the honour of giving it birth : it would, however, ill become anyone speaking of apple culture in this room, to forget that in the early years of the century Mr. John Vivian was in the habit of sending regularly to George III. a sample of the delicious Cornish Gilliflower (then a new apple), so that if Madam had her whim from Germany, the King had his pleasure from Cornwall ! and the historic garden which furnished the royal basket is close at hand—nay ! we are on the very ground.

The Gilliflower is not in the lower end of Kea a bad bearer, but is subject to dreadful depredations from the Tom-tits, who scoop them out before they are ripe.

These few remarks are not the gleanings from one book, or one year, or one page of memory: but they are the gleanings of many years and many pages regarding a subject fraught with human interest.

## CERTAIN INTERESTING CRYSTALLINE ALLOYS.

BY RICHARD PEARCE, DENVER, COL.

*(Extracted from the Transactions of the American Institute of Mining Engineers.)*

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IN the treatment of auriferous copper containing bismuth, I have recently observed a small quantity of a grayish-white alloy, which on examination, proved to be Bi containing in solution, as it were, a crystalline alloy of Bi and Au. This compound makes its appearance on the surface of the auriferous Cu in small globules as the latter cools.

These globules are rapidly attacked by nitric acid, and fine needle shaped crystals of Bi and Au separate out. They are insoluble even in strong nitric acid.

On examination, the crystals were found to contain: Gold 69.94 per cent.; silver, 0.63 per cent.; bismuth, 29.43 per cent. (No. 1).\*

The residue is very fusible, and at a temperature considerably below its melting-point it oxidizes rapidly, changing from its original gray color to a greenish-yellow (No. 2). On melting in a crucible under flux, a bronze-colored alloy is formed that has a specific gravity 15.47—somewhat higher than the calculated specific gravity of a simple mixture of the two metals in the proportions named.

In following out my investigations by repeated examinations of this alloy, formed at different times, I found that, in dissolving a miscellaneous lot of the alloy in nitric acid, some gold-yellow crystals were formed, which I succeeded in separating from the BiAu alloy by washing. These yellow crystals, under the microscope, showed distinct, regular, octahedral faces, and on examination they were found to be a crystalline alloy of Au and Ag in the proportion of 69 Au, 21 Ag (No. 3). The quantity was too small to admit of any very correct determinations of these crystals; but the peculiar feature was remarked that they contained Ag, while the BiAu crystals did not in any appreciable quantity.

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\* This and similar numbers following refer to the samples forwarded by the author to the Secretary.

My next experiment was to remelt some of the original Bi compound with Ag, so arranging that the Ag should exist in the melted alloy in the proportion of one atom of Au to one of Ag. The alloy was prepared by melting in a small crucible under a layer of borax, and then allowing the crucible, with its contents, to cool very slowly. This was done by placing the small crucible inside a larger crucible that had been previously made red-hot, and allowing the whole thing to stand until cold. The small crucible was then broken and the button of alloy detached. This alloy was found to be very brittle and crystalline. It was broken into lumps and treated in a flask with dilute nitric acid—one of acid to three of water. I found, after all the Bi had been attacked by the acid, that nothing was left behind but a beautiful crystalline alloy of Au and Ag (No. 4). There was an entire absence of any Bi Au compound, which was found in former experiments. The solution of nitrate of Bi showed no trace of Ag. These crystals were found to contain: Gold, 62.164 per cent.; silver, 35.486 per cent.; Cu and Bi, 2.35 per cent. Further boiling of the crystals with strong nitric acid gave (No. 5): Gold, 65.21; silver 33.19; copper, 1.60.

Alloys of gold and silver in all proportions may be obtained in this way, depending on the amount of Ag used and also on the strength of nitric acid employed in the separation of the Bi. The largest and best formed crystals are, however, those in which the Au and Ag exist in the ratio of their atomic weights. Repeated boiling with strong nitric acid will, however, remove a portion of the Ag, without in any way damaging the crystals or effecting any very marked change in the color. In a number of experiments that I have made with the alloys of Au and Ag, the lowest percentage of Au resulting from treatment with  $\text{HNO}_3$  was 58.51 (No. 6), and the highest 94.15 (No. 7).

#### ALLOYS OF GOLD AND COPPER.

Crystals of an alloy of Au and Cu may be obtained precisely in the same way by substituting Cu for Ag. The form of crystals is the same, that of the regular octahedron, but they are much smaller. A crop of crystals was obtained having the composition 61.52 Au and 38.48 Cu (No. 8). On treating these crystals with strong nitric acid and boiling for some time until

there was no further action, a large percentage of the Cu was dissolved out, and a product was obtained a little darker in colour, containing 93.49 Au and 6.51 Cu (No. 9).

Crystals were also obtained containing all three metals in the proportion: Gold 60.16; silver, 21.21; copper, 18.63 (No. 10).

These experiments indicate that Au will not combine with Bi if Ag or Cu are present in sufficient quantity. The crystals of Au and Bi are in fine needle-shaped forms, the system of crystallization not determined; but possibly rhombohedral (the crystalline form of Bi).

Au, Ag, and Cu crystallize out together from a solution of these metals in Bi; the mother liquor, if I may use the expression, containing no Ag or Cu unless these metals are present in excess of what is required to form alloys that will resist the action of dilute nitric acid.

The following experiment was made with the view of determining the solvent action of Bi, melted at a low temperature, on the crystals of alloy of Au and Ag formed by the process that I have described:

An alloy was made by melting Au and Ag in about their atomic proportions with Bi, and allowing to cool slowly. The alloy was then heated in a small iron ladle until it became liquid, care being taken not to increase the temperature much above the melting-point. The liquid portion was then poured off and the residue of crystals drained until a pasty mass was obtained. The temperature was then slightly increased, and a further quantity of molten Bi poured off. The percentage of each product was as follows: 56 per cent. of the total weight was poured off at the first melting at a low temperature; 19 per cent. after a slightly increased temperature; the rest, 25 per cent. (the pasty mass), re-treated with dilute nitric acid, gave a crop of good crystals, which were found to contain: Gold, 59.06; silver, 37.21 (No. 11); Cu and Bi (by diff.), 3.73. Treated with strong nitric acid, their composition became: Gold, 68.53; silver, 27.54; copper, 3.93. I found in this experiment that the pasty residue in the ladle contained only about 62 per cent. of the total gold, the remainder being carried off by the liquated Bi.

The ratios of the gold and silver in these three products were as follow:

			(Approximately.)
First liquation, . . . .	Au 74.16	Ag 25.84	$\text{Au}_3\text{Ag}_2$
Second liquation, . . . .	Au 65.35	Ag 34.65	$\text{AuAg}$
Pasty residue, . . . .	Au 71.33	Ag 28.67	$\text{Au}_4\text{Ag}_3$

In all these alloys of Au, Ag, and Cu, the only crystalline form observed was that of the regular octahedron without any modifications.\*

#### ALLOYS OF BISMUTH AND PLATINUM.

Experiments were made to see how far it was possible to prepare in a similar way crystalline alloys of platinum and bismuth.

Pt and Bi were melted together and allowed to cool slowly in the usual way. The brittle alloy was treated first with dilute nitric acid and then with strong acid. A black crystalline powder was obtained, which, under the microscope, showed some few crystals, form not determined.

A second experiment was made with the addition of Cu to a similar mixture as before. A highly crystalline, jet-black residue was obtained, which, on examination, proved to be binoxide of platinum.

Crystalline alloys are obtained in the same way as with Au; but these compounds, unlike those containing Au, are decomposed by nitric acid; the metals Bi and Cu that entered into the composition of the alloy being entirely replaced by oxygen, and this without destroying the structure of the crystal, as will be seen by examination (No. 12). The black crystals became red-hot in a current of hydrogen, water being condensed on the sides of the tube, a grayish-white powder of Pt being left behind (No. 13). A loss of weight was sustained in this experiment equal to 13.75 per cent., which is very near the amount of oxygen required by the formula  $\text{PtO}_2$ . On heating in a tube, it gives off O, a grayish-white powder of Pt remaining.

The black crystals can be ground easily in a mortar without showing the slightest evidence of metallic particles. Alcohol is readily oxidized by this compound. On heating the crystals, a trace of reddish-brown gas is given off, probably due to a small quantity of occluded nitric oxide.

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\* The Bi used for most of these alloys was somewhat impure, containing notably a little copper.

If it were possible to attack the Bi by some acid that is not oxidizing, we should unquestionably obtain crystals of the alloy of Pt and Bi, or Pt and Cu, or perhaps Pt, Bi, and Cu; but on using nitric acid as the solvent, we have to be content with pseudomorphs of  $\text{PtO}_2$  after the alloy.

In order to avoid the use of nitric acid, an experiment was made by substituting Zn for Bi, in the hope that crystals would be formed that could be separated by dissolving out the Zn with  $\text{H}_2\text{SO}_4$ . A black powder was obtained in this way, showing, however, no evidence of crystallization. On treating the black powder with nitric acid, Cu was dissolved to the extent of 20 per cent., and a grayish-black residue was obtained, which, when dried, possessed highly oxidizing properties (No 14). It instantly ignited a drop of alcohol and exploded a mixture of hydrogen and air. What the exact nature of this substance is, I have not determined; but it differs materially from the crystalline black substance prepared from the Bi alloy. From the loss sustained on ignition (less than one-half required for  $\text{PtO}_2$ .) it would appear to be finely divided platinum intimately mixed with  $\text{PtO}_2$ . Its oxidizing properties are, however, far more energetic than were shown by the previous compound.

These experiments that I have drawn attention to may be regarded as being of a preliminary character. They offer, however, a field for further investigation that would, in all probability, lead to some interesting facts connected with the composition of alloys.

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Trevarno ... ..	1	1	0	(Cantab) ...	1	1	0
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Colorado	... ..	Proceedings of the Colorado Scientific... Rich. Pearce, F.G.S., Society H.B.M. Vice-Con- sul, Denver, Col- orado.
Dublin	... ..	Journal of the Royal Geological Society of... Geological Museum, Ireland Trinity College, Dublin.
Dublin	... ..	Proceedings of the Royal Irish Academy... 19, Dawson Street, Dublin.
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Gloucester	... Transactions of the Bristol and Gloucester- shire Archæological Society	The Museum, Gloucester.
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London	... Proceedings of the Zoological Society of... London	3, Hanover Square, London, W.
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London	... Commission of Patents	25, Southampton Buildings, Chancery Lane, London W.C.
Leeds	... Annual Report of the Leeds Philosophical... and Literary Society	Leeds.
Liverpool	... Proceedings of the Liverpool Literary and... Philosophical Society	Liverpool.
Liverpool	... Transactions of the Liverpool Engineering... Society	Royal Institution, Colquitt Street, Liverpool.
Liverpool	... Proceedings of the Liverpool Naturalists'... Field Club	S. James's Mount, Liverpool.
Liverpool	... Transactions of the Historic Society of... Lancashire & Cheshire	C. F. Gatty, Free Public Museum, Liverpool.
Manchester	... Transactions of the Manchester Geological... Society	Manchester.
Newcastle-on-Tyne	... Transactions of the North of England... Institute of Mining and Mechanical Engineers	Newcastle-on-Tyne.
Philadelphia	... Proceedings of the Academy of Natural.. Sciences of Philadelphia	19 & Race Streets, Philadelphia.
Philadelphia	... Transactions of the Wagner Free Institute... of Science of Philadelphia	Wagner Free Institute of Science, Montgomery Ave, and 17 Streets, Philadelphia.
Plymouth	... Annual Report of the Transactions of the... Plymouth Institution	Plymouth.

Penzance	... Transactions of the Penzance Natural... Penzance.
	History Society
Penzance	... Transactions of the Royal Geological... Penzance.
	Society of Cornwall
Rome	... British and American Archæological... Rome.
	Society of Rome
St. Petersburg	Comité Geologique de St. Petersburg ... S. Petersburg.
Tiverton	... Transactions of the Devonshire Association... Rev. W. Harpley,
	Clayhanger Rec- tory, Tiverton.
Taunton	... Proceedings of the Somersetshire Archæo-... Taunton Castle,
	logical and Natural History Society Taunton.
Tuckingmill	... Proceedings of the Mining Institute of... W. Thomas, Cooks
	Cornwall Kitchen, Tucking- mill.
Vienna	... K. K. Naturhistorischen Hofmuseums ... Dr. Franz Ritter,
	von Hauer, Vienna Austria.
Welshpool	... Collections Historical and Archæological... M. C. Jones, Gun-
	of Montgomeryshire (Powys Land Club) grog, Welshpool.
Welshpool	... Journal of the Cambrian Archæological... Venble. Archdeacon
	Society Thomas, Meiford Vicarage, Welsh- pool.
Washington	.. The Smithsonian Institution ... .. Washington, D.C.
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The MUSEUM is open to Members and their families every day except Sundays, between the hours of Ten and Four o'clock during the winter, and between Nine and Six o'clock in the summer.

The Museum is open to the public, free of charge, on WEDNESDAYS, from Noon until dusk, during the winter months, and until Six o'clock in the summer months. On other days, an admission of sixpence is required.

An *Annual Subscription of Five Shillings* entitles the Subscriber to admission to the Museum on Mondays and Saturdays, and to attend all the Meetings of the Society.

A *Subscription of Ten Shillings* further entitles the Subscribers to introduce to the Museum and Meetings all the *bona-fide* resident members of the family.

A *Subscription of One Guinea* entitles the Subscriber to all the publications issued by the Institution, to admission to the Museum, for himself and family on every day in the week, and to the Meetings of the Society : and to ten transferable tickets of admission to the Museum whenever open.

The "JOURNAL OF THE ROYAL INSTITUTION OF CORNWALL" will be forwarded free of charge to the members subscribing One Guinea annually. To other subscribers to the Institution it will be supplied on payment, in advance of Five Shillings a year ; or the several numbers may be obtained from the Curator, or from a bookseller, at Four Shillings each.

## Royal Institution of Cornwall.

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### 68TH ANNUAL GENERAL MEETING.

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The Annual Meeting of the Royal Institution of Cornwall, was held on Nov. 25th, 1886, at the Rooms of the Institution, Truro, the Rev. W. Iago, B.A., the president, in the chair. There were also present the Revs. Canon Moor, M.R.A.S., W. Rogers, A. H. Malan, and A. R. Tomlinson ; Dr. Jago, F.R.S., Messrs. N. Whitley, F.M.S., H. M. Jeffery, F.R.S., Robert Tweedy, E. Sharp, Hamilton James, W. J. Clyma, J. Barrett, E. G. Spry, W. J. Rawlings, J. Bryant, W. J. Criddle, Theodore Hawken, W. N. Gill, E. Rundle, and Major Parkyn, (hon. secretary).

The president, who had just recovered from a protracted illness, was congratulated by those present on his recovery.

Mr. IAGO thanked the meeting for their congratulations, and said it gave him the greatest possible pleasure to come back after being unable to attend their meetings for the last nine months in consequence of severe illness. He hoped to be able to devote more attention to the interests of the Institution during the remainder of his presidential term.

The Minutes of the last meeting were then read and confirmed.

The Secretary then read the Report of the Council as follows :—

#### REPORT OF THE COUNCIL.

In presenting their 69th Annual Report of the work and position of the Royal Institution of Cornwall, the Council desire to congratulate the members on its generally satisfactory character.



The absence through illness, of our President, the Revd. W. Iago, has been a source of much regret to the Council and to the Society in general, and it affords them much pleasure to see him again to-day occupying the Presidential chair.

As it must be expected, fluctuations among subscribers occur in each year; and the Council regret to report the loss of three members by death, Mr. C. W. Peach, Mr. Richard Edmonds, and Mr. W. Teague. Mr. Peach, was born at Wansford, in Northamptonshire, in the year 1800, and died at Edinburgh, on 28th of February, of the present year, having attained to the ripe old age of 86. Having been born near one of our great English forests he naturally acquired that love for field sports, which characterised his early days, and the keen powers of observation, developed in the pursuit of sport, stood him in good stead, when in after life he gave his attention to the more noble pursuit of natural science. Mr. Peach's connection with the Royal Institution of Cornwall lasted over a period of nearly half a century; for it was previous to 1840, that we find him enriching our Museum with valuable specimens in Natural History, and contributing Memoirs on Natural Science to the Journal. When he was stationed at Gorran Haven, in the coast guard service, he sent for the first time a case of 50 specimens of Organic Remains from Fowey, Polruan and Polkerris, which was gratefully acknowledged in the Report of the following year. It was at this time that he was elected an Associate of this Society, "for his laborious exertions in the discovery of the fossil remains enclosed in our rocks under circumstances which would have discouraged most men from the pursuit of science." We next have a paper of his on the discovery of the Encrinites at Carhayes, Looe, and Morval, and remarks with specimens of *Helix pomatia* and *Carthusiana*. Perhaps Mr. Peach's greatest discovery was that of a *Holothuria* with twenty tentaculæ, a species of the echinodermata, which Professor Forbes pronounced, when speaking of Star Fishes, to have never before been observed in British seas. Mr. Peach was eventually transferred from the coast-guard service to the customs, and it was when stationed at Durness in Scotland, that he discovered those fossils which are now our means of determining the geological age of the Highland rocks, as by similar

discoveries he had previously obtained the key to the age of great part of the older rocks of Cornwall and Devon. These studies brought him into contact with Darwin, Owen, Huxley, Lyell, Buckland, and other leaders of science in various departments. Mr. Peach was also a close observer of the feathered tribe; he records that he heard the nightingale in the summer of 1837, in the neighbourhood of Carhayes, and at Gorran Haven, where he so long resided, he had known the swallows to remain there so late as November 30th. A list of his contributions to the Royal Institution of Cornwall would be undesirable in this Report; but a full catalogue of his papers occupies more than two columns in the *Bibliotheca Cornubiensis*. Mr. Richard Edmonds, who died in the spring of this year was associated with this Institution for upwards of 40 years, and during the whole of that long period he was a welcome contributor of papers to our Journal. He was born at Penzance, in 1801, and was educated at the Penzance and Helston Grammar Schools. The last years of his life were passed at Plymouth, in which town he died. Mr. Edmonds was a very voluminous writer; a list of the papers he published with those he contributed to the Transactions of Scientific Societies occupies nearly six columns of the *Bibliotheca Cornubiensis*—upwards of a dozen of these he sent for publication to the Journal of this Institution. Mr. Teague was a remarkable instance of the way in which steady perseverance and diligence in one's calling can raise a man to an influential position. His incessant occupation in the work of his life, namely, the development of the mining interest of the County, did not prevent his taking an interest in the various Scientific Institutions of Cornwall.

The Museum has been visited by a large number of persons to whom its instructive and interesting contents have been freely open, affording them an opportunity of seeing a large portion of the productions of the animal and mineral kingdoms, as well as many illustrations of various conditions of human life in by-gone days. In the collection will be found examples well adapted to assist the student of ethnography, geography, and the natural history of foreign countries, whilst of our own county the petrography, mineralogy and archæology, together with its fauna, are well represented. The collection in our

Museum would be more practically useful if lectures explanatory of their contents could be delivered by competent persons. The number of visitors during the past year was 2804 ; these numbers compare favourably with those of past years, evincing that the public interest in the collection is well maintained.

Monthly Meetings were again held during the winter, when papers of much interest were read. It is intended to resume these meetings in the coming month ; and promises of assistance have already been given by Mr. H. M. Jeffery, F.R.S., Canon Moor, Revd. A. Malan, and Mr. Howard Fox.

Since the last report the library has engaged much of the attention of the council ; and the binding of the several numbers of periodicals of the different societies, which had fallen into arrear, has been nearly completed. The library, including the transactions of various societies which exchange publications with our own society, as well as scientific and archæological publications, forms a valuable collection available to members for reference. A recent notable addition to the library is a set of the Memoirs, comprising 47 large quarto volumes of the Royal Astronomical Society. This Institution feel they are indebted to the kind offices of Mr. Edwin Dunkin, F.R.S., and late President of the Royal Astronomical Society, for this valuable gift, which is one rarely accorded to provincial societies, being reserved for Foreign Governments and State Observatories.

It may be mentioned here also, that a grant of upwards of 100 volumes from the Public Record Office has been made, comprising Calendars of State Papers, ranging from 1547 to 1667, and other publications, forming a very valuable acquisition, and one which will be of great assistance to the student in his historical researches. On the table in the outer room are to be found the current numbers of scientific and archæological periodicals ; and on Monday evenings, these rooms are in winter warmed and kept open until 10 p.m., with a view to more convenient inspection and to intercourse among the members. In the library a new catalogue has been completed, which had been long desired, under the direction and supervision of Canon Moor, to whom this Institution is indebted in many ways. The catalogue has already facilitated the researches of our members.

Since the Spring Meeting steps have been taken to procure the dies for the Henwood Medal, and estimates, varying from £12 to £120 have been received from various Die Sinkers in London. It will now be the duty of the Council to decide in the matter, and we may calculate that the award of the first medal will take place in three years' time, according to the terms of the bequest.

The external appearance of the museum has been lately improved; steps have been taken to renovate forthwith the interior of the building, and estimates have been procured from tradesmen of the city.

Two numbers of the Journal (31 and 32) have appeared since the last Annual Meeting, and contain articles of interest. As each number of the Journal appears, fresh applications for its supply by exchanges with kindred societies are made, and continual evidence of its work and value are received by the Council. In the last number of the Journal a valuable paper on "The Early History of the Nautical Almanack" was written by Mr. Edwin Dunkin, F.R.S., and late President of the Royal Astronomical Society. The narrative especially interests Cornishmen as most of the early calculations were made in the County. Sir John Maclean also contributed a paper of much interest to Cornishmen, on "An Ancient Cornish Deed in English."

An effort has been made to get together a collection of the Portraits of the noblemen and gentlemen who have filled the Presidential chair, and with such success that the set is nearly complete. There are reasonable grounds for believing that the remaining six required to complete the number will be forthcoming.

The Annual Excursion took place on Tuesday, the 7th September. The party, numbering between 40 and 50, had a most agreeable day, the weather being very favourable. The route lay along the Ladock Valley to Roche, Castel-an-Dinas, S. Columb, and Mawgan. Ladock was the first halting place, and here the excursionists were cordially welcomed and hospitably entertained by the Revd. S. Raffles Flint, who exhibited some fine specimens of Sir Joshua Reynolds's works, and art

treasures from the Indian and Oriental collections of the late Sir Stamford Raffles, his great uncle. The Church was next visited under the guidance of Canon Wise. It is a very interesting one and has been beautifully restored. Roche was reached about noon after a pleasant drive across the Goss Moors. Here the church, an interesting old cross in the churchyard, and the celebrated twin rocks were visited, and an excellent paper on the monastic chapel was read by the Rev. A. H. Malan. The next halting place was Castel-an-Dinas, when Mr. Jeffery, one of the vice-presidents of the society, informed the excursionists that they had gained an altitude of 730 feet: pointed out the sinuous approach, the well, and the dry wall formation of the ramparts, which are now believed to be two, and not four in number. It is noteworthy that in the Cornish Drama of Bennan's Meriasek, one of the scenes is placed at Castel-an-Dinas, then standing. At S. Columb the church was first visited, and the two old crosses in the churchyard inspected. In the interior some fine brasses were seen, and Mr. G. B. Collins, the churchwarden, courteously conducted the party over the sacred building and produced the "Green book" a folio in which accounts have been kept from 1585 to the present time. Curious entries are found which throw much light on the customs of the age:—recording *inter alia* that a sheep was lent for 7d. the rentee taking the progeny and the wool: that a stock of money was also supplied for "trayned soldiers" in the time of the threatened Armada, and the accounts show that people who could dispense with a coffin could be buried at half price. The Rectory was visited, on the moated site of the original parsonage of the Arundell who officiated at S. Columb before the reformation. Dinner was served at the Red Lion Hotel, under the Presidency of Mr. H. M. Jeffery, and appreciated. The party next drove to Carnanton, where they were received by Mr. H. J. Willyams, and shewn by their guide, himself an artist, the very valuable gallery of paintings of old and modern masters. Mawgan was next reached: the Nunnery of Lanherne, the ancient 16th century seat of the great Arundells, being the chief object of interest here, the excursionists were fortunate to have Revd. Father Dawson, chaplain of the establishment for their guide, who conducted them over the

chapel, displayed the relics and costly vestments, and seemed most desirous to satisfy the curiosity of the party without the least reserve. After tea had been partaken of, the start for home was commenced—Blue Anchor, Ladock, and Tresillian were successively passed, and at about 11 o'clock home was happily reached.

The Society have to thank Mr. Robert Harvey, of Iquique, Chili, for the present of a large inscribed stone, sent to this country by that gentleman at some considerable expense. The stone seems to describe the journey of one of the Tribes of that country. Mr. Harvey has further provided a stand in which it will be placed in the Museum.

A series of maps of the river Fal and its tributaries has been collected; some of which have been judged by the council to be worthy of publication. Some are mere artists' maps, and even those based on actual survey are inaccurate in detail. Yet they have all great interest for the local antiquary: such documents over-ride and often confute current traditions. The oldest were drawn in Elizabeth's reign prior to Carew, the oldest of the county historians. They portray the towns, churches, gentlemen's seats, and ferries, and also show how far the tributaries of the Fal were navigable at low water, stating some of the soundings. The amount and rate of silting can be roughly estimated from these data.

The ancient nomenclature and pronunciations of existing names of places, will be valued by the student of the Cornish language, and it will be noticed that English words had already ousted the prior native terms. The full appreciation of these documents will require the co-operation of several persons, who are conversant with different portions of the locality.

When we refer to the early Reports of this Society and see the very heavy debt the founders and those who succeeded them had to contend against, it is a source of unfeigned pleasure that the council can report so favourably on the present financial position of the Royal Institution of Cornwall. Through a long series of years, upwards of half a century, there hung over the society a debt of such magnitude as would have quite discouraged any others than the zealous band of men who with such ability

carried this Institution through the troubles and difficulties of its early days. There is a credit balance at the bankers of £186 3s. 9d. as against £180 6s. 7d. of last year. This balance will, however, probably be much reduced during the present year by the contemplated outlay of the council in painting and renovating the interior of the building, a work they had hoped and desired to accomplish many years since.

The Council desire to add to this Report the expression of their gratitude to the Secretaries, Mr. H. Michell Whitley, and Major Parkyn. To Mr. Whitley is due the very satisfactory manner in which the Journal is conducted, and he has also contributed thereto much valuable matter. To Major Parkyn the thanks of the Institution are due for the great care and diligence with which he has managed the affairs of the society, especially in connection with the main details which could only be conducted by one resident among us. The Library also has been most materially benefitted by the care with which the serial volumes have been brought to a state of perfection and continuity, which needed much patience for its completion.

The President being elected for two years has still one year more to serve.

The Council propose the election of the following gentlemen as Vice-Presidents for the ensuing year: Dr. Jago, F.R.S., Canon Moor, H. M. Jeffery, F.R.S., Warrington W. Smyth, F.R.S., and A. P. Vivian, F.G.S. And for the Council: Canon Cornish, Mr. Howard Fox, Mr. Hamilton James, Mr. H. S. Leverton, Rev. A. H. Malan, Mr. R. M. Paul, Mr. E. G. Spry, Rev. A. R. Tomlinson, Mr Tweedy, and Mr. Whitley. As Treasurer, we propose the re-election of Mr. Arthur Willyams, and as Secretaries, Mr. H. Michell Whitley, and Major Parkyn.

The following Balance Sheet has been prepared by our Treasurer, Mr. A. Willyams.

Dr. Mr. J. G. Williams, Treasurer, in support with the Royal Institution of Cornwall. Dr.

[illegible]



Mr. H. M. JEFFERY, before the adoption of the report was proposed, said he thought the report would be incomplete if it did not contain a recognition of the special and valuable work performed by Major Parkyn, one of their secretaries—(applause.) Major Parkyn deserved their thanks for many extra-official offices which he had rendered to the institution; besides the collecting the portraits of the gentlemen, who had filled the presidential chair, he had been most diligent in making up for the neglect of former years by completing the arrears of work—(applause).

The PRESIDENT endorsed what Mr. Jeffery had said regarding Major Parkyn, and added that very few knew how much work had devolved upon him (Major Parkyn) during the past year. Mr. H. M. Whitley, their other secretary, was also deserving of their gratitude—(applause).

It was decided to insert a paragraph in the report recognising the services of Major Parkyn and Mr. H. M. Whitley, the hon. secretaries.

Canon Moor, in moving the adoption of the report, availed himself of the occasion to emphasize what had been said respecting the extreme value of the services Major Parkyn had rendered to the institution. Major Parkyn had worked patiently and assiduously, and had brought their library into a most creditable condition.

Mr. R. TWEEDY seconded the motion, and it was carried unanimously.

The following list of Presents, since the Spring Meeting, held on Friday, 4th June, 1886, was then read :—

TO THE LIBRARY.

Bristol ... ..	Transactions of the Bristol and Gloucestershire Archæological Society, Vol. 10 ; and Notes on the Wills of the Great Orphan Book, No. 5.	The Society, 21st November, 1886.
Ditto ... ..	Proceedings of the Bristol Naturalists' Society, Vol. 5, Part 1.	The Society, 13th October, 1886.
Canada ... ..	Canadian Gazette, Weekly .. ...	The Publishers.
Ditto ... ..	Canada : its History, Productions, and Natural Resources.	Canadian Government 23rd Aug., 1886.
Colorado ... ..	Proceedings of the Colorado Scientific Society, Vol. 2, Part 1.	The Society, 26th July, 1886.

Cape of Good Hope.	Cape Meridian Observations, 1879 to 1881, Observations of the Great Comet, 1882, at the Cape of Good Hope.	Astronomer Royal, 15th October, 1886.
Deane ... ..	Major General and Admiral Richard Deane, by Sir John Maclean, F.S.A.	Sir John Maclean, F.S.A., 20th October, 1886.
Devonshire ...	Report and Transactions of the Devonshire Association, Vol. 18, St. Marychurch, 1886, and the Devonshire Domesday, Part 3, Extra Vol.	The Association, 30th October, 1886.
Glasgow ... ..	Proceedings of the Philosophical Society of Glasgow, Vol. 17, 1885-86.	The Society, 4th October, 1886.
Hazell ... ..	Hazell's Annual Cyclopædia, 1886 ... ..	The Author, 18th Nov., 1886.
Ireland ... ..	Journal of the Royal Historical and Archæological Society of Ireland, 5th Series, No. 11, July, 1886.	The Society, 22nd October, 1886.
Ditto ... ..	Journal of the Royal Geological Society of Ireland, Vol. 7.	The Society, 29th October, 1886.
London ... ..	Proceedings of the Geologists' Association	The Association, Quarterly.
Ditto ... ..	Monthly Notices of the Royal Astronomical Society.	The Astronomer Royal, Monthly.
Ditto ... ..	Patent Office, 12 Parts, 1884-86 ... ..	Patent Office, 9th October, 1886.
Ditto ... ..	Journal of the Society of Arts ... ..	The Society, weekly.
Ditto ... ..	Journal of the Royal Meteorological Society	The Society, quarterly
Ditto ... ..	The Meteorological Record ... ..	Ditto.
Ditto ... ..	Proceedings of the Zoological Society of London.	Ditto.
Ditto ... ..	Greenwich Observations, 1884 ... ..	The Astronomer Royal 15th Oct., 1886.
Ditto ... ..	Proceedings of the Society of Antiquaries, London.	The Society, quarterly.
Ditto ... ..	Journal of the Anthropological Institute...	The Institute, quarterly.
Ditto ... ..	Proceedings of the Royal Physical Society, Session cx, 1880-81, Session cxii, 1882-83	The Society, 13th Nov., 1886.
Ditto ... ..	Quarterly Returns of Marriages, Births, and Deaths in England.	Registrar General, quarterly.
Liverpool ...	Proceedings of the Liverpool Naturalists' Field Club.	The Club, 23rd August, 1886.
Manchester ...	Transactions of the Geological Society of Manchester, Part 20, Vol. 18, Part 1, Vol. 19.	The Society, 23rd August, 1886.
Montgomeryshire	Collections, Historical and Archæological, relating to Montgomeryshire, Powys Land Club, Vols. 19 and 20.	The Club, 4th October, 1886.
Newcastle on Tyne	Transactions of the North of England Institute, Vol. 35, Parts 3 and 4.	The Institute, 21st November, 1886.
Penzance ...	Natural History and Antiquarian Society of Penzance.	The Society, 23rd August, 1886.

Philadelphia ...	Proceedings of the Academy of Natural Sciences of Philadelphia, Jan. to March, 1886.	The Academy, 15th Sept., 1886.
Plymouth ...	Annual Report and Transactions of the Plymouth Institute, Vol. 9, Part 2.	The Institute, 30th June, 1886.
Russia ... ..	Les Ammonites de la Zone à Aspidoceras de l'est de Russie, Vol. 2, No. 3.	Russian Government, 5th July, 1886.
Ditto ... ..	Bibliothèque Géologique de la Russie Rédiger par S. Nikitin, Part 1, 1885.	Ditto.
Ditto ... ..	Bulletins du Comité Géologique, S. Petersburg, Vol. 5, Parts 1, 6, and 7 and 8.	Ditto.
Ditto .. ...	Memoirs du Comité Géologique, S. Petersburg, Vol. 3, No. 2.	29th Oct., 1886.
Ditto .. ...	Carte Géologique Général de la Russie d'Europe, Feuille 139.	Ditto.
Ditto ... ..	Geologische Erforschung des Verbreitungsgebietes du Phosphorit am Dnjester Von M. Melnikow.	Ditto.
Somersetshire	Proceedings of the Archaeological and Natural History Society of Somersetshire, Vol. 35, 1885.	The Society.
Tolstoi ... ..	What I believe, by Leon Tolstoi ... ..	The Publishers.
United States of America	Smithsonian Report, 1884 ... ..	United States Government, 24th June, 1886.
Ditto .. ...	Geological Survey, 5th Annual Report, 1883-84.	Ditto, 14th July, 1886.
Ditto ... ..	Bulletin of the United States Geological Survey, Nos. 24, 25, and 26.	Ditto, 30th July, 1886.
Ditto ... ..	Monographs of the United States Geological Survey, Vol. 9.	Ditto, 15th Sept., 1886.
Ditto ... ..	Acta Mathematica Zeitschrift Herausgegeben Von G. Mittag-Leffler—Smithsonian Institute.	Ditto, 3rd Nov., 1886.
Vienna ... ..	Annalen des KK Naturhistorischen Hofmuseums, Band 1, No. 3.	Austrian Government, 23rd August, 1886.
Wales ... ..	Archæologia Cambrensis. Journal of the Cambrian Archæological Association, Nos. 9, 10, and 11.	The Association. 22nd Oct., 1886.

## TO THE MUSEUM.

Specimens of the Matrix of Diamonds from Kimberley, South Africa ... ..	Presented by Dr. Winn, Harley Street, London.
Specimen of Cataclouse Stone, from St. Colan Church ... ..	Presented by Mr. T. Clark.
Trade Token of James Bonython, Mevagissey ... ..	Presented by Mr. Tremayne, Heligan.

## BOOKS PURCHASED.

Western Antiquary.

Symons's Rainfall Magazine.

Quarterly Journal of the Geological Society of London.

The Ray Society.

The Palæontographical Society.

Journal of the Meteorological Society.

Nature.

The Zoologist.

Knowledge.

Mr. WHITLEY on behalf of Dr. Winn, presented to the institution various specimens of stones from the Kimberley Diamond Fields, which, he said, were valuable to them. There was amongst the specimens one rock very similar to the Cornish green stone rocks commonly called blue elvan, and there was a crystallization on the surface of one of the specimens similar to that found in some of the local rocks. The whole of the specimens would be valuable in connection with local geology.

The PRESIDENT said Mr. John Tremayne, of Heligan, had presented to the museum a brass token or farthing, which was interesting, because they had never had one like it before. It was found in Mevagissey Church, and was of considerable local interest, although of no intrinsic value. On the obverse it displayed the name "James Bonython" surrounding three *fleurs-de-lis*, (marshalled 1 and 2; not as the Bonythons used them armorially, 2 and 1). On the reverse, "of Mavegisie, 1651," surrounding the Initials of James Bonython and Mary his wife, thus placed {<sup>B.</sup><sub>M.</sub>, as was usual on tokens of this class.

One other Mevagissey Trade Token, that of John Keagle, 1664, was previously known.

The Parish Registers throw light upon these names.

The following papers were then read:—

"The Krakatoa Explosion, 1883," by Howard Fox.

"The Ancient Topography of Falmouth," by H. M. Jeffery, F.R.S.

"Catacleuse Stone from Colan Church," by T. Clark.

On the motion of Mr. E. RUNDLE, seconded by Mr. T. HAWKEN, the vice-presidents and members of the Council, as proposed in the report, were elected.

The Rev. W. ROGERS proposed a vote of thanks to the gentlemen, who had contributed papers to the meeting and presents to the library and museum.—Mr. WHITLEY seconded the vote, which was carried unanimously.

A vote of thanks was accorded the President on the motion of Mr. W. J. RAWLINGS, seconded by Mr. E. G. SPRY; and the proceedings terminated.

In the evening a conversazione was held at the Institution, when various subjects of interest were discussed.

## THE ANNUAL EXCURSION.

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The Annual Excursion was held on Tuesday, September 7th, and, the district chosen being an interesting one, it was well attended. The start was made from Truro shortly after eight. Ladock was the first halting place; and here the excursionists were cordially welcomed by the Rev. S. Raffles Flint, who exhibited some fine specimens of Sir Joshua Reynolds and Northcote's work, and other art treasures. From here a short walk through the rectory grounds brought them to the church, where they were met by Canon Wise. The church is an interesting one, and has been beautifully restored. It is built on the plan common to most Cornish churches. The costly reredos, constructed of alabaster, marble, and tile work, was greatly admired, as was also the ancient font, made of the famed cataclouse stone. At the west end of the church is a small inscribed slate, which Mr. Flint discovered about two months ago, and had fixed in its present place. It records the death of one William Rundell, who died 1665. The inscription contains a quaint allusion to the deceased's trade of watchmaker, and is in a fine state of preservation. From the church the party were conducted to the Holy Well, which, by the way, is acknowledged not to be *the* holy well, though it is locally known as such. This place is chiefly interesting from the fact that a carved head, supposed to have come from the original church of Ladock, is built into the wall.

Having once more got under weigh, the excursionists proceeded to Roche, driving over the dreary Tregoss Moors, the fabled hunting ground of King Arthur. A halt was made to examine the tin streaming, which is carried out in most primitive fashion, and was interesting as a specimen of the patience, with which the tin streamer will work for a small pittance. Roche was reached a little before twelve; and some time was spent in

examining the ancient cross in the churchyard and the interior of the church. The most interesting features of Roche are the rocks, on which some pleasant minutes were spent. The Rev. A. H. Malan read a short description of the spot. He said the history of Roche hermitage is enveloped in obscurity. The rock itself rising abruptly from the surrounding plain is not unlike Vixen Tor on Dartmoor, and with the chapel above looks singularly romantic when viewed from the eastward. The chapel consists of two storeys, the upper being the larger of the two. The lower storey appears to have been the cell; while the area above, from the greater finish of the east window and the well-designed piscina, would be the chapel proper. But the presence of a piscina (or credence, or stoup) in the lower storey looks as if this were used for religious purposes by the occupants of the cell. The tracery of the east window of the chapel is figured in Lysons' History. The dimensions of the chapel are 22 feet  $\times$  10 feet; dimensions of cell, 12 feet  $\times$  10 feet. Tradition tells us that when his Satanic majesty would chase Tregeagle, by way of a break in the giant's laborious but monotonous work of attempting to bale out Dosmary Pool with a leaky croggan (limpet shell), Tregeagle would come and place his head in the opening of the east window, and as long as he kept in the precincts of the sanctuary he was safe from further molestation. This hermitage is dedicated to St. Michael. Professor Rees says that the dates of churches, &c., in Wales, which are dedicated to the Archangel, range from 718 to the tenth century A.D. There are only five churches in Cornwall with a similar dedication, and eight chapels. Roche Church is dedicated to St. Conant, "whose memory," says Polwhele, "is still preserved by the well of Trefonk, his park, and meadow, commonly called St. Gonnett's. Gilbert, writing in 1820, says of the chapel—"About 40 years ago the buildings were repaired; but it has since been plundered of nearly every material, and nothing now remains but walls and window frames." There is a tradition among the parishioners, that the chapel was erected by the last male heir of the Tregarick family, who, about A.D. 1400, grew disgusted with the world, and retired to this cell, where he spent the remainder of his days. Setting aside the tradition (Gilbert proceeds), it should be observed that Roche

Rock is situated in the manor of Tregarrick, which was once the seat of the Tregarrick family. One of this race, it is probable, erected the buildings on the rock as a summer-house, which would afford extensive prospects, and would be a striking ornament to the grounds!" As regards the name, though there was a Saint Roche in the calendar, the saint is unconnected with this place: the parish was called Roche long before the saint of that name was born. Tre-roach, or Tregarrick [Cornish, Tre—dwelling; garrack—rock], the "Rock-town," before the Norman Conquest, was in possession of a family, thence named Tre-roach, afterwards called de Rupe or de Rupes (in Latin), and again, after the French, called de Roach, of which family Ralph de Rupe held in Cornwall three knights' fees of land in 1189. John Tregarrick, who was member for Truro, 1383, is said to have been the last inhabitant of the hermitage. Roche rocks are of white sparry quartz, mixed with schorl. Near by is St. Gonnett's Well—a rock with a small hole, a few inches deep, which always contains water, said to ebb and flow with the tide. From this supply it is recorded that the maiden Gonnett obtained water for the necessities of her father, a leper, who for years remained shut up in the cell above. (A story founded on the usual legend of St. Roche). Carew writes of the well—

You neighbours, scorers, holy, proud,  
Goe people Roches cell;  
Fare from the world, near to the heavens,  
There Hermits may you dwell!  
Is't true that spring in Rock, hereby,  
Doth tidewise ebbe and flow:  
Or have we fooles with lyers met?  
Fame saies it, be it so.

This is the wishing well of Roche, to which the village maidens used to repair on Holy Thursday, to throw in pins and pebbles and predict coming events by the sparkling of the bubbles.

From Roche the party proceeded to Castel-an-Dinas. The hill is of a conical form, 730 feet above the sea level, and was crowned by a camp with four, or rather, two concentric circular ramparts. The formation of the camp was described by Mr. Jeffery, and its plan exhibited after a drawing and measurements made by Mr. Henry Mc. Lauchlan, in 1849 (31st Annual Report of the R.I.C. App. I.)



After enjoying the fine breezes from the moors for a few minutes, the visitors descended the hill, and, having again taken their seats, were driven to St. Columb. The church was first visited, and the old cross by the porch and another near the east end were examined.

In the interior there are placed to the Arundell family some good brasses. Mr. Collins, the churchwarden, produced the "Green-book," a folio in which accounts have been kept from 1585 to the present time. The work contains many curious illustrations of bygone manners and customs. From this book we learn that the people in Queen Elizabeth's days used to keep cows and sheep, and farm them out at so much a year. A sheep was let for 7d. a year. Money was also raised for "trayned soldiers" in the time of the Armada. The accounts show that people who could dispense with the luxury of a coffin, could be interred at half-price. The ordinary charge was £1 6s. 8d; but in 1680 occurs this entry:—"John Lawry, without coffin, 13s. 4d."

The excursionists, having dined at the Red Lion Hotel, started for Lanherne. On the way a call was made at Carnanton, where, by the kindness of Mr. E. W. Brydges Willyams, the lower rooms were thrown open to admit an inspection of the pictures at the mansion. When the party arrived at Lanherne, the chapel at the Nunnery was inspected, the precious vestments and a portion of what was called the true cross being exhibited by the priest. Mawgan church was also visited. There are many points of interest here, including the Arundell brasses, a fine screen, and some beautifully carved bench ends. There is also an elaborate cross with Gothic Head of 4 carved panels—the Sculptures therein represent the Annunciation, the Divine Father holding in front of himself the crucified Redeemer, and there are Episcopal side-figures. The date of this Cross is about A.D. 1350.

A more ancient cross stands in the Nunnery grounds. M. Hübner assigns it to the seventh or eighth century, there are letters within panels both on back and front under an interlaced ornamentation. The cross itself is four-hold, (that is connected with a circle), and shews an image of the Saviour. If the

inscription be of the same date as the cross (which is evidently the case), then we have here (says Mr. W. C. Borlase) a proof that the interlaced ornamentation—the triguetra—in use in early times in Ireland, Scotland, Man and Scandinavia, was in use in Cornwall in the seventh or eighth century, and that the other crosses of the same form may be assigned to the same period.” Anglo-Saxon letters are on the cross, but the language of the Inscription is Latin. To this however it should be added that not far off, by the roadside at Mawgan Cross, stands another specimen displaying the crucifixion. Mr. Malan, in some notes he had prepared, said this cross would be remarkable (in East Cornwall) for containing the figure of the Saviour, were it not that it is really a West Cornwall cross, brought from the manor of Roseworthy, in Gwinear. The crosses of the West, around Hayle, are of one type, more or less, shewing the Irish influence from early Irish saints who came to Cornwall; those in the east of the county shew the Welsh influence of the Welsh saints.

After a short stay at Mawgan, the party returned in the evening to Truro.



TABLE No. 2.

MONTHLY MEANS OF THE THERMOMETER.																											
1886.	Month.	MASON'S HYGROMETER.						SELF REGISTERING.							ABSOLUTE.												
		9 a.m.		3 p.m.		9 p.m.		Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.
	January	40.0	38.1	43.1	40.4	39.5	38.0	40.9	0.4	40.5	38.8	0.3	38.5	1.5	35.9	4.6	46.0	35.0	40.5	0.1	40.4	11.0	54.0	3	20.0	23	34.0
	February	38.9	37.0	43.4	40.0	39.5	37.8	40.6	0.7	39.9	38.3	0.5	37.8	2.1	35.0	4.9	45.5	34.6	40.0	0.1	39.9	10.9	51.0	12	24.0	5	27.0
	March	42.7	40.4	46.0	42.3	41.1	39.7	43.3	1.0	42.3	40.8	0.6	40.2	2.1	37.7	4.6	48.4	38.0	43.2	0.2	43.0	10.4	60.0	23	20.0	14	40.0
	April	49.0	44.8	53.2	47.5	47.2	44.5	49.8	1.6	48.2	45.6	1.3	44.3	3.9	40.0	8.2	56.1	41.0	48.5	0.1	48.4	15.1	69.0	24	30.0	12	39.0
	May	55.0	50.2	58.6	51.8	50.2	48.0	54.6	2.3	52.3	50.0	1.4	49.6	2.7	46.9	5.4	62.7	45.0	53.8	0.8	53.0	17.7	71.0	9	32.0	1	39.0
	June	60.6	55.0	63.4	56.2	55.6	53.4	59.9	2.9	57.0	54.9	1.7	53.2	3.8	49.7	7.3	67.1	50.0	58.5	0.3	58.2	17.0	80.0	30	43.0	9	37.0
	July	64.3	58.2	66.2	59.2	59.3	57.0	63.3	2.1	61.2	58.1	1.2	56.9	4.3	53.1	8.1	70.6	54.1	62.3	0.3	62.0	16.5	85.0	3	43.0	9	42.0
	August	62.7	58.6	66.0	60.5	59.4	57.5	62.7	2.0	60.7	58.9	1.2	57.7	3.0	55.1	5.6	70.0	54.0	62.0	0.3	61.7	16.0	77.0	22	43.0	3	34.0
	Sept	59.8	56.5	63.0	57.8	57.3	55.1	60.0	1.7	58.3	56.5	0.9	55.6	2.7	53.1	5.2	66.7	51.5	59.1	0.2	58.9	15.2	80.0	14	42.0	7	38.0
	Oct	54.4	52.0	57.0	54.0	53.0	51.0	54.8	0.8	54.0	52.3	0.6	51.7	2.3	49.4	4.6	60.0	49.0	54.5	0.4	54.1	11.0	68.0	7	32.0	22	36.0
	Nov.	47.3	45.4	51.0	47.8	46.8	45.0	48.4	0.6	47.8	46.1	0.5	45.6	2.2	43.2	4.6	53.1	42.1	47.4	0.1	47.3	11.0	59.0	1	30.0	10	29.0
	Dec	40.2	38.5	45.0	42.5	40.4	39.0	41.9	0.2	41.7	40.1	0.3	39.7	2.0	37.2	4.5	49.0	35.0	42.0	0.0	42.0	14.0	55.0	6	14.0	21	41.0
	Means	51.2	47.9	54.7	50.0	49.1	47.2	51.7	1.4	50.3	48.4	0.9	47.5	2.7	44.7	5.6	57.9	44.1	51.0	0.2	50.7	13.8	67.4		31.1		36.3

The Thermometers are placed on the roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1886.		WINDS.																																															
Month.		E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.																							
		a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean	a.m.	p.m.	Mean																					
January		0	0		0	2	0	0	0	1	7	3	3	2	9	7	5	7	9	1.7	2.8	2.0	2.2	2.0	2.2	1.7	2.8	2.0																					
February		8	8		3	6	4	1	2	0	2	2	2	2	4	3	5	4	7	1.6	2.2	1.6	1.8	2.4	2.7	1.6	2.2	1.8																					
March ...		9	6		6	6	6	2	3	1	5	1	4	3	2	2	6	6	7	2.6	3.0	2.4	2.7	2.0	2.5	2.6	3.0	2.5																					
April ...		8	4		1	5	2	3	4	1	6	1	3	4	6	4	2	2	4	2.5	3.0	2.0	2.5	2.0	2.5	2.0	2.6	1.6																					
May ...		5	8		4	4	4	6	2	0	9	6	3	2	2	5	3	1	1	2.0	2.6	1.6	2.1	1.5	2.0	1.9	2.5	1.5																					
June .....		2	2		3	0	1	4	5	3	1	2	2	2	11	14	1	1	1	1.9	2.5	1.5	2.0	1.4	2.0	2.2	2.5	1.4																					
July .....		2	2		2	2	2	2	3	2	7	5	1	4	9	10	1	0	0	2.2	2.5	1.4	2.0	1.0	1.7	1.9	2.2	1.0																					
August ...		1	0		1	0	0	4	3	3	8	1	4	5	10	11	0	1	3	1.8	2.3	1.2	1.8	1.8	2.3	1.8	2.3	1.2																					
Sept. ....		5	7		1	0	1	6	5	1	10	0	1	1	4	5	6	4	3	2.2	2.6	1.8	2.3	1.8	2.3	2.2	2.6	1.6																					
Oct. ....		5	4		7	5	2	5	3	4	3	3	1	3	5	5	5	5	4	1.7	2.6	1.6	2.0	2.0	2.2	1.7	2.6	1.6																					
Nov. ....		2	0		0	1	0	4	2	1	7	2	4	4	9	6	7	2	8	2.0	2.7	2.0	2.2	2.0	2.2	2.0	2.7	2.0																					
Dec. ....		1	2		0	1	1	1	0	1	7	3	4	1	13	13	12	0	7	2.0	2.7	2.0	2.2	2.0	2.2	2.0	2.7	2.0																					
Total ...		48	46		29	32	22	38	32	18	67	29	32	33	84	86	89	25	49	24.1	31.2	20.1	25.1	24.1	31.2	20.1	31.2	25.1																					
Means ...		45.7				27.7				29.3				70.3				81.3				86.3				25.3				50.7				2.0				2.6				1.7				2.1			

The force of the Wind is estimated on a scale from 0 to 6, from calm to violent storm.

TABLE 4.

WEATHER.																						
1886.	Month.	AVERAGE CLOUDINESS.				RAINFALL.					Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation of the air.	Mean humidity of atmosphere.	Mean elastic force of vapour.	Mean weight in grains of a cubic foot of air.	Amount of water in a vertical column of air.	SUN.			Dry.	Wet.	REMARKS.
		Rainfall in inches.			Greatest fall in 24 hours, Truro.	Date.	No. of days in which rain fell.	Truro.	in.	Shine.							Gleam.	Cloud.				
		9 a.m.	3 p.m.	9 p.m.															Mean.			
	January	7.8	7.4	6.5	7.2	5.45	21	0.90	20	2.45	0.50	85	.211	550.7	3.0	21	0	41	68	25	Frost 7, 8, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28. Hail 3, 13, 18, 19. Snow 18, 19, 20, 26. Thunderstorm 1, 6.	
	February	7.7	8.0	7.7	7.8	2.40	13	0.82	28	2.37	0.52	83	.204	558.6	3.1	16	3	37	71	13	Frost 4, 5, 7, 10, 15, 20, 22, 26, 27. Hail 2, 3.	
	March ...	8.0	7.5	6.5	7.3	3.80	17	0.51	17	2.61	0.60	84	.226	552.5	3.2	23	6	33	73	20	Frost 4, 5, 7, 11, 12, 13, 14, 15, 16, 17. Snow 2, 5. Gale 16, 20. Thunderstorm 21.	
	April .....	7.4	6.9	6.2	6.8	2.45	16	0.43	28	2.84	1.00	74	.247	546.7	3.3	32	4	24	78	12	Frost 12, 20. Hail 7, 8. Swallow seen 15. Onckoo heard 24.	
	May .....	6.8	6.4	6.5	6.6	2.90	16	0.58	11	3.29	0.81	83	.322	540.4	3.5	34	6	22	85	8	Frost 1, 20. Remarkable Rain 11. Hail 20.	
	June .....	6.7	6.0	5.0	5.9	0.80	6	0.48	9	3.96	1.24	76	.357	537.6	4.9	43	0	17	84	6	Fine weather.	
	July .....	6.4	6.7	6.0	6.4	3.86	15	0.55	19	4.53	1.51	75	.404	531.2	5.5	35	7	20	85	8	Remarkable Rain 13, 19.	
	August ...	7.0	6.7	7.3	7.0	1.74	9	0.40	12	4.91	1.03	83	.434	532.8	5.9	34	7	21	84	9	Rain fell 1, 6, 8, 9, 12, 13, 15, 16, 21.	
	Sept. ....	7.0	7.0	7.0	7.0	3.49	13	0.80	30	4.52	0.94	84	.404	535.1	5.5	34	3	23	84	6	Remarkable Rain 20.	
	Oct. ....	7.8	8.0	7.8	7.9	6.26	25	0.84	10	4.01	0.69	84	.353	535.8	4.8	21	4	37	76	17	Remarkable Rain 9, 12. Gale 12, 14, 15, 16.	
	Nov. ....	8.0	7.5	7.0	7.5	4.14	21	0.93	6	3.16	0.62	85	.279	546.0	3.8	20	1	39	70	20	Gale 2. Hail 6. Remarkable Rain 6.	
	Dec. ....	7.0	7.0	6.0	6.7	7.02	25	1.22	26	2.57	0.50	86	.222	549.6	3.0	31	0	31	67	26	Frost 3, 16, 17, 18, 19, 20, 21, 25. Hail 1, 2, 5, 6, 7, 8, 13, 14, 15. Gale 7, 9, 20. Snow 18, 19. Remarkable Rain 13, 14.	
	Means ...	7.3	7.1	6.6	7.0	44.31	16.0			3.43	0.83	82	.305	543.1	4.1	28.7	3.4	28.7	77.0	14.1		

The rain gauge at Truro is placed on the flat roof of the Royal

Cloudiness is estimated by dividing the sky into ten parts, and noting how many of these are obscured. The rain gauge at Truro is placed on the flat roof of the Royal Institution, at about 40 feet from the ground. Gleam is recorded when the sun's disk is visible through a film of cloud.

## Royal Institution of Cornwall.

### SPRING MEETING, 1887.

The Annual Spring Meeting was held at the rooms of the Institution, Truro, on June 6th, 1887, the President, the Rev. W. Iago in the chair.

The following list of presents, since the Annual Meeting on 25th November, 1886, was read.

#### ADDITIONS TO THE LIBRARY.

Basset ... ..	Tonkin's Whitaker's and other MSS. relating to the antiquities and Natural History of Cornwall ... ..	Mr. Basset, Tehidy, 28th April, 1887.
Birmingham...	Proceedings of the Birmingham Philosophical Society, Vol. 5. Part 1, Session 1885-86.	The Society, 26th November, 1886.
Bristol and Gloucestershire	Transactions of the Bristol and Gloucestershire Archaeological Society, Vol. XI. 1886-1887, and the Domesday Survey of Gloucester, Part 1.	The Society, 6th April, 1887.
Bath ... ..	Proceedings of the Bath Natural History and Antiquarian Field Club, Vol. 7, No. 2, 1887.	The Club, 22nd May, 1887.
Canada ... ..	A Canadian Tour; Times Correspondent.	The Times, 27th November, 1886.
Ditto ... ..	Report on the Forests of Canada by J. H. Morgan.	The Author, 27th November, 1886.
Ditto ... ..	Report on Immigration and Colonization.	The Publisher, 27th November 1886.
Ditto ... ..	Canadian Gazette ... ..	The Publishers, weekly.
Colorado ...	Proceedings of the Colorado Scientific Society, Vol. 1. 1885, Vol. 2, Part 1, 1885.	The Society, 7th Feb. 1887.
Clarke ... ..	Roads & Road Metalling by Thos. Clarke.	The Author, 22nd Apr. 1887.
Edinburgh ...	Transactions of the Edinburgh Geological Society, Vol. 5, Part 2, Edinburgh 1887.	The Society, 25th March, 1887.
Ditto ... ..	Proceedings of the Royal Physical Society of Edinburgh, Vol. 9, Part 1.	The Society, 29th December, 1886.
Eastbourne ...	Transactions of the Eastbourne Natural History Society, Vol. 1; 6 Parts New Series.	The Society, 2nd February, 1887.
Essex ... ..	Transactions of the Essex Field Club, Vol. 4; Part 2, December 1886.	The Club, 17th March, 1887.

Essex ...	The Essex Naturalist, Nos. 1, 2, 3, and 4.	17th March, 1887.
Glasgow...	Transactions of the Geological Society of Glasgow, Vol. 8, Part 1, Vol. 10, Part 1, 1884-85.	The Society, 27th December, 1886.
Ireland ...	Journal of the Royal Historical and Archæological Association of Ireland Vol. 12. Nos. 65, 66, and 67.	The Association, 10th March, 1887.
Ditto ...	Journal of the Geological Society of Ireland, Vol. 8, Part 1.	The Society, 28th May, 1887.
Jeffery ...	On the converse of Stereographic Projection and on Contangential and Coaxal Spherical Circles by H. M. Jeffery, F.R.S.	The Author, 7th April, 1887.
London ...	Quarterly return of Marriages, Births, and Deaths in England.	Registrar General, Quarterly.
Ditto ...	Journal of the Society of Arts.	The Society, weekly
Ditto ...	Monthly Notices of the Royal Astronomical Society.	Astronomer Royal, Monthly.
Ditto ...	Journal of the Anthropological Institute of Great Britain and Ireland.	The Institute, quart- erly.
Ditto ...	Proceedings of the Geologists' Association.	The Association, quarterly.
Ditto ...	Industrial Review.	The Publishers, weekly.
Liverpool ...	Journal of the Liverpool Polytechnic Society, 49th Session, October and November, 1886.	The Society, 18th December, 1887.
Ditto ...	Proceedings of the Literary and Philosophical Society of Liverpool, Vols. 39 and 40.	The Society, 27th March, 1887.
Montgomery- shire.	Collections, Historical and Archæological relating to Montgomeryshire (Powys Land Club) Vol. 20, Part 1.	Powys Land Club 4th, April 1887.
Manchester ...	Transactions of the Manchester Geological Society, Vol. 19, Parts 2, 3, 4, 5, 6 and 7.	The Society, 22nd April, 1887.
Milne ...	Historical Records of the 1st. Cornwall Artillery Volunteers, by Capt. Milne, Adjutant.	E. W. Rashleigh, 5th April, 1887.
New York ...	The Library Journal, Vol. 2, No. 2.	The Publishers, 7th December, 1886.
Newcastle-on- Tyne.	Transactions of the North of England Institute of Mechanical Engineers, Vol. 36, Parts 1 and 2.	The Institute, 11th April, 1887.
Penzance ...	Transactions of the Royal Geological Society of Cornwall, 73 Annual Report Vol. 11, Part 1.	The Society, 17th May, 1887.
Philadelphia ...	Proceedings of the Academy of Natural Sciences of Philadelphia, Parts 2 and 3.	The Academy, 17th May, 1887.
S. Petersburg	Bulletins du Comité Géologique de St. Petersburg, Vol. 5, Nos. 9, 10 and 11, Vol. 6, Nos. 2, 3, 4, and 5.	Russian Government, 13th April, 1887.



Rundle ...	The Torpedo or Electric Ray, E. Rundle, L.R.C.P.	The Author, 26th December, 1886.
Rowell ...	Electric Meteorology, G. A. Rowell...	The Author, 25th February, 1887.
Rashleigh ...	Notes on the Parish of Golant, Evelyn W. Rashleigh.	The Author, 5th April, 1887.
Rome ...	Journal of the British and American Archæological Society of Rome, Vol. 1, Nos. 2, and 3.	The Society, 12th March, 1887.
Stokes ...	The Taunton, MSS.	H. S. Stokes, 6th June, 1887.
United States of America.	Bulletin of the U. S. Geological Survey, Nos. 27, 28, 29, 30, 31, 32, and 33, Washington, 1886.	Department of the Interior, 21st Dec. 1886.
Ditto ...	Monthly Weather Review, Jan. Feb. Mar. April, May, and June.	War Department 21st December, 1886.
Ditto ...	Summary and Review of International Meteorological observations, January, June, 1885.	Ditto.
Ditto ..	Annual Report of the Board of Regents of the Smithsonian Institute for 1884, Part 2.	The Institute, 6th April, 1887.
Ditto ...	Monographs of the U. S. Geological Survey Vol. 2, Washington, 1885.	The Institute, 26th April, 1887.
Ditto ...	Mineral Resources of the United States of America 1885.	U. S. A. Geological Survey, 26th Apr. 1887
Vienna ...	Annalen K. K. Naturhistorischen Hofmuseums, Band 1, No. 4, Band 2, No. 1.	Hofmuseums, 12th March, 1887.
Vivian ...	Visitations of Cornwall, Parts 15, 16, and Conclusion.	Col. Vivian, 15th May, 1887.
Wales ...	Y Cymmrodor, Vol. 8, Part 1.	The Society, 25th March, 1887.
Ditto ...	Archæologia Cambrensis, Journal of the Cambrian Archæological Association, Nos. 12 and 12.	The Association, 28th April, 1887.
Walford...	Walford's Antiquarian Magazine, No. 66.	The Publishers, 4th June, 1887.
New Zealand	Mines Statement, by the Minister of Mines	Hon. S. M. Larnach, C.M.G., 10th February, 1887.

## BOOKS PURCHASED.

London ...	Quarterly Journal of the Geological Society.	Quarterly.
Ditto ...	The Ray Society, Vol. for 1886.	Annually.
Ditto ...	The Palæontographical Society, Vol. 40 for 1886.	Annually
Ditto ...	Journal of the Meteorological Society.	Quarterly.
Ditto ...	Symons's Meteorological Magazine ...	Monthly.
Ditto ...	Nature ... ..	Weekly.

London ...	Knowledge ... ..	Monthly.
Ditto ...	The Zoologist ... ..	Monthly.
Plymouth ...	Western Antiquary ... ..	Monthly.
Tonkin ...	The Tonkin MSS., Vols. 1 and 2 ... ..	The Borlase Sale.
Pryce ...	W. Pryce's Mineralogia Cornubiensis ...	Ditto.
Borlase ...	Typical Specimens of Cornish Barrows, by W. C. Borlase, M.P., F.S.A.	Ditto.
Jago ...	An English Cornish Dictionary, F. W. P. Jago, M.B.	
Jenyers ...	British Vertebrate Animals, by the Rev. Leonard Jenyers, M. A.	

PRESENTS TO THE MUSEUM.

Bundle ...	Casts of Fish ... ..	Edmund Bundle L.E.C.P.
Iago ...	Portraits of Davies Gilbert, President of the Royal Society, and Rev. John Wallis M.A., F.S.S., Author of the Bodmin and Cornwall Registers, &c.	Rev. W. Iago, Pre- sident R.I.C.
Heard ...	Collection of Minerals... ..	E. G. Heard, J.P.
James ...	Indian Arrow Heads and an Iron Bullet found at Wyeville, Virginia, U.S.A.	T. T. James.
Clarke ...	Collection of Geological Specimens illus- trating the Archaic Rocks of Cornwall.	T. Clarke.
Pearce ...	Specimens of Minerals from the Mammoth Mines, Utah, U.S.A.	Rich. Pearce, F.G.S., Her B. Majesty's Vice-Consul, Denver, Colorado, U.S.A.
Ditto ...	Tyrolite, in Crystals ... ..	
Ditto ...	Erinite on Azurite ... ..	
Ditto ...	Erinite on Massive Enargite ... ..	
Ditto ...	Olivinite, green colour due to Erinite ...	
Ditto ...	Chalcophylite, in Emerald Green Crystals	
Ditto ...	Clinoclasite with Azurite ... ..	
Ditto ...	Clinoclasite, Crystals of ... ..	
Ditto ...	Clinoclasite on Erinite .. ...	
Ditto ...	Azurite altered to Erinite... ..	
Ditto ...	Pharmacosiderite, Crystals of, on Enargite	
Ditto ...	Brochantite ... ..	
Ditto ...	Conichalcite ... ..	
	These Minerals have only recently been discovered in the United States— it was considered hitherto that they were to be found only in Cornwall.	
Ditto ...	Meteoric Iron from New Mexico ... ..	
Ditto ...	Gold and Silver Alloy.	

Major PARKYN, Hon. Sec., stated that since the gift of the very valuable collection of books made, by the late Mr. G. Freeth of Duporth, to this Institution, undoubtedly the acquisition of the Tonkin MSS. purchased in the spring of this year, at the sale of Mr. Borlase's books, in London, has been the most important addition which the library has received for many years. The gift of Tonkin MSS. generously made to this Society by Mr. Basset of Tehidy, deserved more than a passing notice, and a permanent record of it had been made in the form of a resolution passed at a recent Council Meeting, a copy of which was forwarded to Mr. Basset. Our president has, I believe, had some other MSS. handed to him by Mr. H. S. Stokes, of Bodmin, for the benefit of this Institution.

The President then delivered his address, which is printed in the present number of the Journal.

The following papers were next read:—

“The so-called Raised Beach at Falmouth,” by N. Whitley, F.R.M.S.

“Sir Henry de Bodrugan,” by H. Michell Whitley, F.G.S.

“Microbes,” by H. M. Jeffery, F.R.S.

“Archaic Rocks in Cornwall,” by W. Clark.

The PRESIDENT said the valuable MSS. presented by Mr. Stokes ought to be designated the “Taunton MSS,” as some of them were written by, and all had been in the possession of Dr. Taunton, one of the physicians of the Royal Cornwall Infirmary. The collection contained a number of most interesting original documents referring to Truro, together with copies of many ancient deeds, and original notes made by Dr. Taunton himself, who married the daughter of Whitaker. The society now possessed the Tonkin, the Whitaker, and the Taunton MSS.

The PRESIDENT called attention to some old bills in connection with the Truro Town Council, which he said were of an amusing character. One of the bills was for the supply of a large quantity of drink because it was the King's birthday, and another was for drink and tobacco “at the setting the towl corn beame and scales and kea.” In those days they made anything an

excuse for a good outlay in that direction. He also exhibited a well-preserved Papal bull, dated 1254, confirming to the Cistercians their exemption from tithe.

Votes of thanks were passed unanimously—To the Authors of Papers submitted to the Society, to the Donors to the Museum and Library, and to the President for his able address and conduct of the meeting.

## Spring Meeting, 1887.

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ADDRESS BY THE PRESIDENT, REV. W. IAGO, B.A.

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“LONG MAY VICTORIA REIGN!”

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God save the Queen!—the illustrious and gentle Patron of this Royal Institution,—the Monarch who is ever zealous for the welfare of all, and who exerts all her influence for good.

May Her Most Gracious Majesty be preserved from harm in this her year of Jubilee, and for ever!

So pray we, one and all, as loyal subjects of the Empire and as members of this Society.

We inhabitants of Cornwall, dwelling in the uttermost part of the land, are neither insensible to the benefits of good government nor are we beyond the reach of those resources of civilization which our friends in the Metropolis enjoy. With respect to both, we have, each year, some distinct progress to report in this nearly detached portion of England. Geographically we are all but severed from the English main, for Cornwall consists partly of Islands, and our Peninsula itself is also set in the ocean of the golden west. We are almost wholly encircled by sparkling waves. Only a little isthmus, comprising a few yards of land, connects us with the mother country,—just where the fountains rise and flow apart by the hills in Morwenstow, heights which are crowned, like others in various parts of our county, with massive tumuli, the vestiges of a pre-historic era :—

“ Hard by the scenes where pagan hosts have striven  
And where their valliant chieftains fell,—’tis said,—  
Grave-mounds are raised o’er slabs all roughly riven  
Which serve to guard the ashes of the dead.”

Weapons and cinerary urns may yet be found within those mouldering heaps.

Except in that brief span of ground, situate in our most northern parish and not far from its wild coast,—“a fearful vicinity for the mariner,” as Wallis has called it,—either the billows buffet our rocky boundaries or the rippling stream laves our border-land.

This narrow terrene connection however is greatly surpassed in utility by another, still narrower, in the south,—an artificial isthmus which shoots through the air at Saltash,—the Railway Bridge, both ends of which (strange to say) rest on what is, or was, Cornish ground. We will refer presently more particularly, if time and space permit, to the advantages which reach us thence.

Bidding farewell, then, to those who lie entombed in the Wooley Barrows and on Sharston Moor, Cornwall's threshold, who died gloriously in the battle, we may suppose, when helping to defend the gate of this our western land from the eastern invader, we must proceed to other scenes. Those Celts served their generation, and their brave spirits have passed from the region where (to quote Hawker, the poet of their romantic coast) :—

“ Above !—The ocean breezes sweep.  
 Around !—The mountains guard the deep.  
 Beneath !—The wide, wide, sea ! ”

Chieftains and Kings, of old, doubtless held dominion in this territory. The sheer precipices and overhanging walls around King Arthur's mysterious birth-place, at grim Dundagell, strike us with awe. Here and there too within our ancient precincts are other rugged monuments telling us of a by-gone race. In certain instances names appear which, however celebrated in their day, awaken no responsive echoes now. Of them I can only say :—

“ On long-stones, set erect, brief words are traced,  
 Names of the mighty and their noble sires !  
 The memory of their deeds by time effaced,  
 In dark oblivion their renown expires ! ”

To form a record of all such stones as remain, bearing inscriptions, has long been an object which I have had in view. I know not whether it will ever be accomplished, but during more than 30 years I have been collecting materials for the task.

Whilst some of our heroes of olden time are of forgotten

fame, others live in history. The names likewise of many early Christian teachers are preserved amid the changed scenes of their self-denying labours and sufferings :—

“ Some rude memorials bear the sacred sign  
Which shews a Christian has been laid beneath,  
Nor need his relics any gilded shrine  
Whilst the fair wild-flowers gem his native heath.”\*

Statements fanciful or true, made by various writers, indicate that the reigns of several of our Cornish Princes extended over more than 50 years respectively. Little reliance can be placed on many of the old legends but this fact certainly remains :—that of all sovereignties exercised from within local strongholds or coming directly from England's throne in any age, there never was a better, purer, or more just administration than that to which Cornwall, as a part of the great Empire, now so thankfully bows ; and although further gains and advantages may yet accrue as time rolls on, no King nor Queen of this or any other country will ever have deserved more righteously the love of subjects, than does our good Queen and Patron, Victoria ! — Long may she reign !

In the Annals of our Constitution since the Norman Conquest we read the names of three Kings, each—by a curious coincidence—the third of his name, who reigned for half a century or more.

Memories of their deeds still linger amongst us and sometimes are unexpectedly awakened. Not only are we generally affected by their grants and laws, but incidentally we are frequently reminded of their sway.

Quite recently, in cutting the newest Railway in Cornwall, a silver coin was found and brought to me for identification. I observed that it bore the name and countenance of our Jubilee Monarch, Henry III, who having succeeded to the throne in 1216, was granted a reign of 56 years. Then, again, the very existence of a Duke of Cornwall recalls to us the Jubilee King Edward III, who created that Dukedom in 1337 and wielded his sceptre for just over 50 years. We have seen His Royal Highness, the present Duke, our Vice-Patron, with his Duchess who is deservedly styled by all “ The Beautiful Princess,” coming into this very City of Truro and helping to build

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\* Chambers's Journal, 1877, p. 160. W. I.

Cornwall's Cathedral by laying for it a good foundation ; and very soon, it is hoped, our Royal Duke and Duchess may be able to take part in the opening services. Our Princely Vice-Patron is thus beheld accomplishing a part of that mission which was sketched out for him by his Royal Ancestor 550 years ago, when in the creating Charter he declared " We have bestowed the name and honour of the Dukedom that our Kingdom and the Holy Church thereof may be the more securely and fitly defended."

Edward, before he had been 50 years upon the throne, celebrated his personal Jubilee on reaching the 50th year of his age. He marked that event in 1362 by issuing, to Bodmin and other places then of consequence, copies on parchment of his "General Pardon" written in Norman French. These documents are still preserved, and I have deciphered and translated that one which belongs to the County Town.

With regard to the next King who held a Jubilee the Cornish granite boulders do testify—for upon the rising ground of the common of Pendrift in the parish of Blisland is still to be seen " King George III's Jubilee Rock." Smaller rocks surround it and some of them serve as steps for its ascent. Sculptures appear on the ponderous mass (which is said to weigh not less than 150 tons), these display the Royal Initials, insignia, and the date 1810, also various armorial devices and mottoes relating to Great Britain, to Cornwall and its Duke. There are emblazoned the Boscawen-Rose cognizance of Lord Falmouth and the Arms of Molesworth. Grouped upon the front are the emblems of Peace, Industry, Agriculture and Plenty. Upon the top are sundry masonic signs. Verses relating to the various figures and to Commerce, composed by the sculptor—an officer in the army, Lieut. Rogers, since deceased,—are also engraved upon a plate of brass.

Pendrift or Pendreive was Mr. Rogers's home, the residence of his father. In his lines he thus addresses his friends and neighbours :—

" May blessings round your dwellings flock  
Ye merry natives of Pendree,  
As long as ye revere this Rock  
In honour of our Jubilee ! "



and he continues :—

“ May Brunswick's lov'd illustrious race  
Still govern Britain, mild and free,  
May after-ages in this place  
Hold many a jovial Jubilee ! ”

Perhaps the members of our Institution may dine upon the Rock in the course of our next Autumn Excursion, thence we might proceed to Roughtor and Brown-Willy, Cornwall's highest peaks—from one of which, as from other western eminences, the Beacon-fires will soon again shine forth upon the night-air to do honour to her Majesty.

Mr. Rogers thus concludes :—

“ When time shall Britain's Kings remove  
To realms of true felicity,  
O may we share with them above  
An everlasting Jubilee ! ”

But I must here at least pause—lest you should think that my remarks about the Jubilee will be everlasting! I will only very shortly advert to two other events which are linked with this now most familiar word.

A Poet who still lives amongst us, Mr. Stokes, is issuing from the press an ode\* which may perhaps quite eclipse the late Poet Rogers's patriotic song.

Lastly, in connection with the present Jubilee, a special matter of business has occupied the serious attention of your council.

One of our Institution members laid before the public a scheme propounded by himself for the enlargement of our premises and for the carrying out of a system of instruction which would in the main have been highly beneficial had no real risk attended it.

I was warmly in favour of the general principle of the undertaking, so were others—but undoubtedly there would have been objections to some of the details. The Truro Civic Authorities most obligingly expressed their willingness to co-operate with us if we could act in the direction indicated.

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\* Since published by Messrs. Liddell, Bodmin. “ A Lay from Cornwall for the Jubilee of Queen Victoria,” written by H.S.S.

When the proposal came to be tested, it was pointed out by those whose opinions were of the greatest value (because formed on a practical knowledge of past experiences, as well as on a careful examination of estimates concerning the future), that the financial prospects and the assumed probabilities of support contained very strong elements of failure. Our funds, now in a satisfactory state, would have been at once crippled and seriously imperiled, therefore we were unanimous in abandoning the scheme unless a sufficient guarantee against eventual loss could be offered to us with it. No such guarantee being forthcoming, we were in duty obliged most reluctantly (on behalf of our members in whose interests we felt ourselves bound to act promptly) to relinquish the submitted scheme.

Many of those who came (with its originator) to lay it before us, have since frankly admitted the wisdom of our course.

Thus it happens that the form of Jubilee Commemoration suggested to us is at an end. I will add no more on the subject except the consolatory announcement that our council has not been led by jubilee ardour into speculative transactions uncertain of success. Our members still "hold their own" for the promotion of legitimate Literary and Scientific research, and financially our Institution is in a better position than it has ever been. During the year its Mortgage Deed has been surrendered and an income from its capital has been obtained. This, in accordance with the Rules, has been for the profit of no member personally but has enabled the society to renovate such portions of its premises as were falling into decay. It has also been the means of securing such literary material as was necessary for keeping pace with the requirements of the time. By a bold but judicious outlay the Library has been augmented in a valuable degree, for not only have unique volumes been secured to complete the partial collection of the same works previously existing, but donors have been aroused and thus manuscripts which are of very considerable value to the county have been obtained. They would otherwise have remained inaccessible to the local student, and in all probability some of them would have been lost to the county.

The Henwood bequest has not been neglected. The medals can be struck when required, for the dies are now cut. At the

end of 2 or 3 years from the present time the first gold medal will be awarded. The late Mr. Henwood's directions appear to this effect in his will :—

“ A Gold Medal of the value of Ten Guineas at the least  
“ shall be awarded triennially to the person who shall, in the  
“ opinion of the Officers and Council for the time being, have  
“ contributed the best treatise or paper on the

“ Geology,

“ Mining,

“ Mineralogy,

“ Botany,

“ Ornithology,

“ Ichthyology,

“ Conchology, or

“ Antiquities

“ of Cornwall, published in any Journal, Proceedings, or  
“ Transactions of the Institution during the 3 years next preceding  
“ the date of such award.” Competition for this medal should therefore immediately commence.

The last number of our Journal was issued in October. The next will shortly appear. It will contain amongst other matters an interesting collection of notes on Falmouth with some curious maps of the locality in reduced facsimile; Mr. Jeffery, F.R.S., one of our most useful Vice-Presidents being the contributor.

Other publications connected with the County, which have been recently brought out, likewise claim our attention. Of these I will mention “The Heralds' Visitations of Cornwall,” edited by Col. Vivian, containing his notes and extensions, also a great number of additional Cornish Pedigrees. He has performed his laborious work patiently under many heavy interruptions. Sympathy must therefore be mingled with the congratulations we would offer him on the completion of his very valuable book of nearly 700 pages. His preface alludes to the loss he sustained of many of his memoranda by fire, to severe family affliction, and to his continued ill-health. Undismayed, however, by the difficulties which have so beset him, he is now still further prosecuting his researches, and we have received from him announcements of the following forthcoming

volumes from his pen:—"The Visitations of the County of Devon" (in progress), "The Transcripts of the Parish Registers of Cornwall," "The Marriage Licences of the Diocese of Exeter." All of great interest to the Cornish Genealogist.

Another book on kindred subjects has also progressed nearly to its 600th page. It is compiled by Mr. Boase one of the indefatigable editors of the "*Bibliotheca Cornubiensis*" (3 vols). The sheets at present passing through the press are entitled "*Collectanea Cornubiensia*," and will prove to be a most valuable supplement to the earlier work.

Sir John Maclean and Mr. Dunkin too, the latter the accurate illustrator of our "Bells" and "Monumental Brasses," continue their contributions to historic literature. "The Western Antiquary," "The West of England Magazine," the County and the Plymouth newspapers, also give us important collections of notes from time to time bearing on Cornish matters. Our religious interests are ably served by Canon Du-Boulay and by Mr. Sach in their respective publications.

Mr. Robert Dennis, a native of Bodmin and an Editor of repute, has written "*Industrial Ireland*," a book likely to be of great use, —if its wise suggestions are acted on, as they should be. It is non-political and many of its recommendations might profitably be applied to the better development of prosperity in Cornwall as well as in the country to which it primarily refers.

An "English-Cornish Dictionary" has long been needed in all our libraries. This want has now been met. It is satisfactory to find that Dr. F. W. P. Jago, already known as the author of "*The Cornish Glossary*," has not shrunk from the toilsome undertaking of supplying what was so strangely lacking in the past.

Our Institution is fortunate in having active local members who pursue the studies of natural history, &c., in their own immediate neighbourhood. Their Meetings and Excursions are stated to have been very successful under the able management of those who have been chosen to conduct and preside.

Archæologically, Cornwall is famous for possessing an almost endless variety of antiquities. British and Roman

remains abound, and yet I would point out that it is remarkable for not possessing a Roman Altar or an Ogham inscription. A Roman bowl engraved with Greek characters was found many years ago at Bossens, St. Erth, and was deposited in the Ashmolean Museum at Oxford. It would be desirable to obtain a loan of this, if possible, in order that we might inspect it at our next Autumn Meeting. Oghams abound in Ireland, Wales, and Devon, but as yet Cornwall has not disclosed one such legend. It has one in Cornish but that is of mediæval date.

The Ordnance authorities have been most obliging in furthering all our archæological interests with which their late Survey in any way identified them. I reported to them the unjustifiable cutting of their bench-mark, or broad-arrow, upon several of our ancient monuments, and an order from headquarters was at once issued with a view to preventing a repetition of this practice here and in other counties. One of the beautiful sculptured crosses so defaced is that called "The Four-holed Cross" on Temple Moor by the roadside between Bodmin and Jamaica. Of this cross and its adornments I have lately made careful rubbings and working drawings, which have been used in sculpturing a memorial just erected at the grave of our esteemed late Lord-Lieutenant, Charles Crespigny, 2nd Baron Vivian of Glynn, in St. Winnow Churchyard. The old design is re-produced on a slightly smaller scale. It has been skilfully wrought by Mr. Evans of Bodmin and his assistants.

A stone in memory of the late Canon Shuttleworth at Egloshayle was carved some time ago by Mr. Juleff of Grampond Road, in imitation of my drawing of the ancient four-holed cross of Cardinham figured and described at page 363 of the 5th volume of our Journal, and that design or a modification of it has been still further repeated.

In some instances, however, in Cornwall, instead of the remains of antiquity having been copied, the originals have been appropriated for secondary use! this is to be deprecated, and has led in one recent instance to a dispute between parishes,—as might have been expected.

With regard to some of these remains I would observe that during the past few years, in order to prevent the incongruous

disfigurement which might have ensued, I have felt no hesitation in giving designs, in accordance with their various styles, for the remounting of the Anglo-Saxon Font of Lanteglos-by-Camelford, now at St. Conan's, Egloshayle; the transition-Norman Font of Temple; and the ancient gothic Cross-heads of Launceston and Lostwithiel. As to the present location or use of any of these, I am not responsible.

Moreover, I have at different times supplied from early rubbings some of the missing figures of brasses in Lanteglos-by-Fowey and St. Breock Churches, to aid in commemorating the departed whose tombs had been despoiled of their effigies. But as a rule I disapprove of replacing lost portions of ancient work by new.

Of course no compunction could exist when circumstances enabled me to restore to Bishop Vivian's tomb, in Bodmin church, one of the original but long-lost supporting Angels which had been broken off from the monument, had been embedded within the premises of an Inn, and had been, for 50 years after its discovery there, mistaken for the image of a Mayor of the Borough who had been hanged!\*

It was also satisfactory to me to be able to assist in bringing together once more the Armorial-Shield and the Inscription-plate of "Cristoffer Tredeneck" (Sheriff of Cornwall in the reign of Henry VIII) at St. Breoke. This shield although mentioned is not figured in Dunkin's work, for some of its charges were not clearly deciphered when he wrote. I made them out afterwards, and also discovered that some over-zealous puritan by cutting a line of erasure in the brass had endeavoured to obliterate from the legend the aspiration that God's mercy might be extended to the soul of the deceased.

The excavations for the new branch Railways have resulted in discoveries as already briefly noted. At Launceston some remains of the old Priory were brought to light.

At Bodmin the new Station and the cutting approaching it mark the site of the mediæval cemetery of the Chapel of St. Nicholas, several graves containing skeletons and silver coins of the 13th century having been found by the men employed.

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\* Bodmin Register, p. 211. R.I. of C. Journal, Vol. VII, p. 195, and Vol. VIII, p. 316.

Elsewhere in Bodmin, through a different cause, other relics have been unearthed, which form part of the ancient Priory of St. Mary the Virgin and St Petroc. During alterations in the grounds of Col. Gilbert's residence, substantial walls, portions of window stones and tracery, doorways, fireplaces, a newel-staircase, paved water-way, roof-slates, ridge-tiles, a circular dove-cote, &c., have been found; also articles of bronze or latten, iron keys, &c., pottery and glass; together with numerous horns of oxen and large quantities of oyster shells. The most interesting discovery of all was a small chancel floor, 17ft. 9in. by 8 feet, laid with 13th century tiles and supporting the base of a stone Altar, 6ft. 3in. long. Of this Altar the killas masonry was rough but it had finely dressed free-stone angles. Steps led to the tiled floor and altar. One of the stones serving for a step had formed part of an older building,—upon its concealed end and under-surface a grotesque Norman gargoyle having been carved. The upper surfaces of the tiles are inlaid and glazed, displaying sacred, heraldic, and other devices.

One detached fragment found in the ruins affords evidence in favour of the present insignia or Armorial Badge of Liskeard Borough, some details of which have, of late years, been called in question.

Col. Gilbert and his son Mr. W. R. Gilbert having kindly placed in my care most of the portable objects found, (with a view to their being eventually deposited in our County collections of antiquities), I hope ere long to publish an illustrated account of them with a plan of the old foundations.

The original Priory of Bodmin, occupied by an English congregation of Augustinian Black Canons Regular, stood at the east end of the town. The modern Priory, inhabited by a congregation of Augustinian White Canons Regular of St. John Lateran, Rome, is situate at the west end.

The Tiles and Altar stones (of what was probably the domestic Chapel of the old house) have been presented to the Prior and his brethren of the existing Convent, and were removed by them on the last day of last year (Dec. 31, 1886), to their present chapel.

A new altar, formed with the old stones, is being there constructed.

St. Petroc, the first Prior of Bodmin, died June 4, A.D. 564, and was enshrined before the Altar of the Blessed Virgin in his Priory church. His ivory reliquary I have already brought to public notice.\*

After St. Petroc's decease, many Priors ruled, most of whose names are either lost to history or are lying hidden we know not where. The earliest of them yet identified is Guido, an Italian, of the 12th century.

A reference to the life of this Prior—who was characterized by great humility—has been found by the members of the present Convent, and they have obligingly given me an abstract of the document.† Guy was killed by a fall from his horse in going to Exeter.

In succession to him there were numerous others, who have been noticed by Sir John Maclean in his History of the former Deanery of Trigg Minor (vol. I, pp. 125-135).‡

We will here refer only to the last three of them.

Thomas Vivian (Titular Bishop of Megara and Suffragan of Exeter), Prior of Bodmin, died on Pentecost Sunday, June 1st, 1533, and was entombed in his conventual church.

John Symons was the next.

Thomas Munday otherwise Wandsworth, followed in 1534, and was the last of the old line:—for, this Prior, on the suppression of Monasteries in 1538, surrendered his holding to the King. We read that about our Lady's Day in Lent, "the howse of Bodmyn went down."

Several of the bells of the old Priory peal, recast, now ring out their sweet but altered tones from Lanivet Tower, as I discovered by an old record in that Parish.

\* Illustration in Maclean's Trigg Minor. (Vol. 1. p. 231.)

Lecture at Somerset House, Feb. 2, 1871, before Society of Antiquaries, (Proceedings, Vol. 5, p. 87.)

Royal Institution of Cornwall Journal, Vol. 4, p. lxx, &c.

† See Catalogue British History, Vol. 2, Rolls Series.

‡ Bodmin is now the centre of a Deanery of its own name.



We also find that, when the demolition of the premises began, Bishop Vivian's handsome "tumbe of a very darkesche grey marble" (catacluse stone), which stood before the high Altar of the Priory Church, was removed for preservation (together with the bones which it contained) into Bodmin Parish Church. There, with Vivian's figure recumbent upon it, it still is. It rests on a modern base and the fragments of his skeleton are now in a zinc box within the paneled portion of the tomb. After I had so placed them the monument underwent a fresh change of position, but I was informed by those engaged in the work that the contents were not interfered with. I have given illustrative plates, of the sculptures in the 5th volume of our Journal (p. 342) and other particulars in the 8th volume (p. 315).

The Priory buildings, and nearly all things connected with them, gradually disappeared; but, after the lapse of three centuries and a half, certain portions have (as stated) been once more revealed.

By curious coincidences it has thus fallen to my lot to point out to the first modern Prior of Bodmin (the Very Revd. Felix Paschal Menchini, C.R.L., Provincial or Superintendent of the three Priories which form the English Province of his Order) the "ivory shell" which at one time enclosed the relics of St. Petroc the Founder of the Bodmin Monastery; the monument of Prior Vivian, with a part of its long-lost stonework replaced; the crumbling remains of that Bishop still existing although more than 350 years old (disclosed during the Revd. Sir Vyell Vyvyan's recent reparation of the tomb); the remains of the steps and tiled pavement trodden by the various Priors, and the base of the Altar at which they ministered,—exhumed from beneath the turf; also an impression of the ancient Seal; &c.

Strange that in connection with Bodmin Priory so many mementoes of the past should have been unveiled in our own day through a succession of unexpected discoveries!

The early manuscript volume of the gospels which belonged to this religious house in the 10th century, and in which manumissions of that date are entered, is preserved in the British Museum. A model of the volume, shewing its exact

form and weight, made under the direction of the late Rev. John Wallis, was deposited by me some years ago in the Museum of the Bodmin Literary Institute.

But we must pass to other topics.

No work has yet appeared treating specially of the Ornamentation traceable in the forms and surface-enrichments of many of Cornwall's antique remains.

Neither the Sculpturings of the ancient stones nor the Carvings of the mediæval woodwork of the county have yet been made the subjects of distinct study and elucidation.

Some types prevail chiefly in certain districts—all afford valuable evidences connected either with home or with distant influences; and a comparison of them, one with another and with those in other places, greatly assists in determining dates.

Mr. Blight, by his descriptions and accurate engravings, has done more than anyone else in Cornwall to perpetuate for Art Students and Archæologists the elegant forms and patterns of a considerable number of the relics of antiquity; and every day it becomes more evident how desirable it would be to obtain (ere decay and church restoration, so-called, have entirely destroyed what time has spared to us) a greatly extended record, classified and carefully illustrated, of our numerous Crosses, Altar-slabs, Fonts, Arch-mouldings, Pillar-capitals, Bench-ends, Rood-screens, Wall-plates, Roof-timbers, Bosses, &c.

Copies of old Frescoes, Panel-paintings, Illuminative decorations, and Stained-glass, would enhance such a collection.

Illustrations of the Church-plate in the different parishes, although possessing constructive associations less local, would also be worth including.

Who will produce for Cornwall so beautiful and instructive a work on Ancient Art in the West?

A few observations upon some plain points characteristic of the ancient workmanship, I will here venture to offer.

First, then, as to contour:—

When modern imitations of the ancient Crosses are made, one important feature of the old work is almost always omitted—and that is, the beauty of a well-balanced Outline.

In nearly every old cross we can detect a carefully calculated good effect produced by "Entasis."

This entasis is, as a rule, entirely overlooked by most of those who seek to reproduce the original designs.

The proper amount of "swelling" for column, obelisk, and cross-shaft, was so nicely adjusted by the ancient artificers that modern imitators frequently fail altogether to realize its presence; and so, by cutting a straight outline, these latter starve their monuments, and afterwards wonder—"What can it be that is amiss?" The effect convinces them that something is wrong, but the uninitiated eye cannot detect the nature of the defect.

The real secret lies in the difference I have mentioned between the new work and the old:—entasis has been neglected by the modern sculptor.

The surfaces of a shaft properly bowed out appear richly flat, whilst a straight outline looks poor and hollow. In other words:—the exact balance of slight convexity is required where straightness would appear concavity. May this expression, should it ever reach so far, awaken some artistic feeling, on this point, in those of the modern Cross-cutters who so fail.

Next, as to ornamental design and details:—

Upon many of our early sculptured stones simple varieties of the Greek-key pattern occur. Concentric circles, spirals, scrolls and interlaced work, greatly diversified, also appear. The cable-moulding, too, was in early use.

Some of the devices were intended to be symbolical, and nearly every particular detail has its meaning.

Perhaps the central single boss upon a Cross may have signified that there is but One true Deity.

Around it were often placed interlaced triple knots suggestive, like the three-fold endless plait, of the Trinity in Unity. The circle, for Eternity, connected the cross-members. Such a combination proclaimed Everlasting Redemption by the power of the Deity. Five bosses have been regarded as typical of the five Wounds of the Redeemer, whilst the Crucifixion is represented by a small figure, upon the disc or cross-head, with the arms

spread apart. Descending to the Gothic period we find the figure placed upon a cross more proportionate to its own size, and side-figures or groups of figures are in some cases introduced. Varied symbolism becomes much more frequent, and additional emblems come into use.

Amongst others, carved in stone or wood, the following have been recognized:—

Three heads conjoined, wearing crowns or without:—The Triune God.

A dove proceeding from the lips of a face:—The Holy Spirit's procession.

A fish (ΙΧΘΥΣ), or the form of a vesica, also certain monograms:—The Immaculate and Divine Saviour of mankind, Christ, the first and the last.

A fleur-de-lis, growing lily, rose, queen or letter M crowned:—the pure and exalted Virgin Mary.

A trampled figure grasping the heel of his conqueror who holds a lily-branch, the letter M supporting the group:—Satan (according to the prophecy) crushed by the seed of the Virgin, but bruising the heel of Mary's Divine Son.

A pelican,\* vulning breast to feed nest of young:—the Self-sacrificing One yielding the blood of life for the Salvation of others.

Figures of various kinds, easily interpreted:—the Passion, Resurrection, and Ascension of Christ.

An embattled and strong tower, attacked by fiends and Divinely defended:—the Church on earth.

Four mitred-heads (full-faced with their chins meeting in central point):—the four Evangelists, perhaps.

The four living creatures:—the four Evangelists, or their Gospels.

P, crowned, various letters, instruments of torture, implements, weapons, the thirty coins, and many other significant objects:—signs of St. Peter, Judas Iscariot, and others.

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\* The idea of lacerated flesh (Carnis) caused "the Pelican in her piety" to be chosen as the heraldic cognizance of the family of Carne. Similarly, for Pearce, we find a fesse, with pellets, between 3 Pelicans piercing themselves.

An ear on a sword blade :—Malchus's ear.

A pig-like head in profile, with gaping mouth :—Hades.

Hideous faces and venomous monsters :—Evil Spirits.

A cowed fox preaching to geese :—Carricature of the Regulars.

Armorial bearings, merchants' marks, personal badges and initials :—indications of founders, benefactors, those who wrought, &c.

The mention of these last leads me to call attention, most emphatically, to the desirability of retaining as long as possible all ancient remains in their original positions. When undisturbed, they give a true account of the structure in connection with which they occur. When transposed into some other part of the fabric, or removed into some other building, their evidence becomes more or less falsified and calculated to deceive future enquirers.

What can be more misleading, for example, than to adorn the roof of one building with the bosses taken from another, when those bosses give the names, arms, or devices of certain donors? I have known instances of such misplacement, in a laudable desire to secure their preservation. The removal has made them false witnesses. They speak eloquently, though inaudibly, of benefactors or artificers who had no connection whatever with the dome in which they now appear. Even such relics as are least regarded, possess in their mere style valuable historical associations, whilst *in situ*. When once shifted, the thread of their story is snapped. This truth should be borne in mind, much more frequently than it is, by church-restorers and by custodians of antiquities in general.

As to Ornament supplying a clue to the Date of a monument, one instance will suffice in illustration.

I will refer to that old inscribed Cross at Cardinham, which I mentioned just now as having been figured by me in our Journal ten years ago, and as having been frequently copied since for modern use. Most of our members are familiar with its design, through my lithograph having been used in the production of a brass imprint for the cover of our earliest

Diocesan Magazine "The Church in Cornwall" (which was ably edited by Canon Cornish and has been succeeded by Mr. Sach's paper "The Church in the West.") It also appears on the cover of the recent edition of Blight's Crosses.

The scroll-work and interlaced patterns on that cross are of chronological importance. They are unusually distinct (having been for centuries protected from the weather), and I have discovered that whilst some of them are identical with those on stone Crosses (inscribed with Runes) in the Isle of Man,\* the central ornamentation agrees with that on the knop of a Pastoral Crook (with Irish legend), which most probably belonged to Kells in the 10th or early part of the 11th century. The staff is of oak encased in decorated silver, brass and niello, and is supposed to be the work of Mac Aeda Cerd.†

Inability to read a date conveyed merely by the occurrence of some form of ornament may be readily excused, but how can we palliate being unable to decipher what has been carefully written in precise terms? This question I ask because it bears upon a great defect in the education of the Clergy of the present day. It applies equally to the case of most of our Legal practitioners. The defect is quite modern.

By Norman custom the Judges were chosen from those in Sacred Orders. The Clergy and Lawyers were as one. Formerly a Clerk and a legal Scribe could read and write with ease and elegance. They could understand and copy what their predecessors wrote. In those days men could plead their skill as clerks actually to save their necks. Benefit of Clergy was extended even to lay persons who could read and might therefore become clerks. Their value was so fully recognized that their lives were not lightly taken. For them, branding took the place of capital punishment. To a certain extent other classes were permitted to be illiterate, but these were expected to be deft penmen and good interpreters of written mysteries.

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\* The same interlaced patterns occur on the Cross at Cardinham in Cornwall, and on those at Kirk Andreas; Kirk Michael; Kirk Christ's, Rushen; Ballaugh; and St. John's, Tynwald; in the Isle of Man; and on the Irish Crook mentioned.

† See "Christian Inscriptions in the Irish language," Petrie and Stokes, University Press, Dublin, vol. 2, page 116, plates 47 and 47a.

But how is it now ?

As a rule our Clerics, Clerks or Clergy, whether Parish Priests or Country Lawyers, are not necessarily taught even to read the style of manuscript in which old Deeds and Registers have been recorded. It often happens that when these documents come into their hands they are neither able to copy them accurately nor even to decipher them if the writings happen to be a few hundreds of years old. Although the entries may have been most carefully and beautifully scriven, it is not the fashion for the parochial clergy to be able to read them without great difficulty.

Of course some can, having probably taught themselves to do so.

With regard to those who cannot, the fault is not theirs if no regular system of instruction has been provided for making them familiar with such writings. Several have lamented to me their being unable to make out with certainty those portions of their Registers which relate to Tudor times.

Many solicitors likewise find themselves every now and then obliged to forward charters or other documents to some office in London for elucidation because they have not sufficiently acquainted themselves with the varieties of the ancient hand.

As for the parochial Clergy, their prevailing lack of deciphering power would soon be met, if, in all Colleges and Divinity Schools the students underwent a course of instruction in reading and writing the beautiful characters formerly in use.

Their general knowledge and scholarship, with very slight aid, and some amount of practice in mastering contractions, would quickly qualify them for reading the writings of the Anglo-Saxon, Norman, Early-English and later Mediæval periods, and they would find that the facility, when once acquired, brings with it genuine pleasure.

As a rule it may be stated that the older the document the more legible is the style of the manuscript, for handwriting deteriorated rapidly in this country after the time of the scholarly Queen Elizabeth. Domesday-book and earlier writings are now more easily read than many deeds drawn up in the days of the Stuarts.

With regard to modern caligraphy, speed is too often made the excuse for an illegible scrawl. The handwriting of many educated men would seem to imply that they had never been taught to form letters correctly, yet many of the busiest amongst them write clearly and well. Nothing can be neater than the manuscripts of Hals, Tonkin, and the Borlases; but some of Whitaker's penmanship is painful to peruse.

The oldest Parish Registers have been the subjects of much discussion. All who have given attention to them seem to have come to the conclusion that greater security ought to be afforded to them generally; and that they should, if possible, be transcribed.

Various proposals with these objects in view have been made, but hitherto without much practical result, chiefly because some of the schemes have been either fraught with danger or would be productive of inconvenience.

Much has been urged for and against the removal of the Registers to some central depository.

Under present circumstances, occasionally a few of the books are consumed by fire, and if a large collection were so attacked the loss would be incalculable. Therefore, whatever is to be their destination, it is highly desirable that duplicate copies of them should exist, the returns of them in the Bishops' and Archdeacons' Registries being very partial and incomplete.

Copies would be very far from trustworthy, however, if the transcribers were not possessed of local knowledge. Some entries have become obliterated, others are dimmed with age or exposure, and these latter would in many cases be quite unintelligible to ordinary copyists unacquainted with the topographical and personal nomenclature of the districts with which they are identified.

Great risk would certainly attend the lending of the Registers by the clergy to their friends for transcription. They should not be trusted to local or any other hands without special precautions being taken for their safety. It is well-known that books lent for an indefinite time are commonly lost, some of the causes conducing to this being the removal of the lender, the death of the borrower, and the dispersal of his effects.



Several years ago I found in London an old Register belonging to a Cornish parish, and was fortunately enabled to restore it to its rightful owners. It had long been lost sight of, through having been borrowed by a churchwarden who died whilst it was in his possession. His friends had afterwards unwittingly removed, with his own books, the Register which he held on loan.

Apart from the accidents caused by fire and lending, some of the old volumes are destroyed, from time to time, through the carelessness of their custodians. On visiting one parish I was informed that the Registers had been purposely burnt because those in charge of them could not read them and consequently regarded them as out of date. In another parish I was told that a clothier had cut the parchment into strips to serve as measures for his work. In some places damp is allowed to rot the books, and no care is taken of detached fragments, whilst the remains of the leaves (separated by decay and falling into several pieces) are intermixed in utter confusion.

Moreover, other records, not in pen and ink but inscribed on stone, are as ruthlessly sacrificed. They, like the others, may be of untold value, but this does not save them from being irreparably injured or permanently lost.

Frequently have I observed with regret the scant consideration accorded to ordinary incised monuments. Almost always when churches and burial grounds undergo renovation or adornment some of these memorials are flung aside, or are broken up, by the hand of the improver. Slate slabs especially are treated as if of no importance, and sometimes freestone and marble tablets also disappear.

All must be aware that tomb-stones supply information omitted from the registers, or no longer remaining in them if ever inserted; yet this seems to be unheeded.

Too frequently, contractors and masons unhesitatingly destroy lettered slabs even in defiance of architects' directions, and seem persistently to evade the means adopted for the rescue of such relics by those interested in them.

However useful to the genealogist or valuable to the possessors of property the records may be, they are soon made to vanish when the work begins, and thus it has happened of late years in Cornwall that much evidence has been needlessly and wantonly destroyed. I have often directed attention to the prevalence of this improper practice, and in certain instances have pleaded not altogether in vain for the preservation of some portions at least of the stone book of the parish.

Collections of Manuscripts relating to Cornwall next call for special notice, several of considerable interest and value, as already announced, having been recently added to our Royal Institution Library.

The various manuscripts now in our hands are for the most part connected more or less with the printed editions of the writings of Carew, Hals, Tonkin, and other authors. The compilations, as far as they were issued through the press, supplied much information concerning the County. Tonkin's written volumes, however, as also Whitaker's and Taunton's documents, the jottings and memoranda of Wallis, Freeth, and Bannister, taken in association with the published works, greatly extend our literary stores. The manuscripts contain interesting matter hitherto unpublished concerning Cornwall, its inhabitants, and ancient language. Some of the works and writings, or portions of them, have come into our custody at different times by gift:—Amongst the donors being the Rev. F. W. Pye, Rector of Blisland; Sir John Maclean, F.S.A.; the late Mr. Freeth of Duporth; Mr. Basset of Tehidy; Mr. Stokes, Clerk of the Peace; and others. Some portions of the manuscripts we have bought. Mr. Rashleigh of Menabilly gave us his advice and aid in connection with the sale of the Borlase Library in London, he being there at the time, and had we not persevered in making the somewhat costly purchase,\* which we effected, and which

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\*The principal purchase consisted of Lot 593, Two Volumes of Thomas Tonkin's *Parochial Antiquities of Cornwall* (Autograph manuscript), Vol. 1, A to I, (by Hals and Tonkin), Vol. 2, K to O, (by Tonkin). Both differ from D. Gilbert's version of the Hals and Tonkin extracts, and contain unpublished portions. Vol. 3, P to Z, had already been presented by Mr. Pye to the Royal Institution Library, Truro.

The first two Volumes were owned successively by W. Sandys, Messrs.

he had recommended, we should not have been presented with other writings of corresponding value. Our enterprize brought us that reward.

With regard to the past history of Cornwall we must assign full value to the original statements of Nordon, Borlase, the brothers Lysons, Polwhele, C. S. Gilbert, Hitchens, Drew, Davies Gilbert, and others, and having done so, we shall find that we may say without controversy that the writings of Carew, Hals, and Tonkin, have constituted the basis and framework of nearly all the parochial histories of our county which have appeared.

Errors, of course, occur in them all, but they have preserved to us much that is true and locally important.

Although some of the remarks of Hals, for instance, are glaringly incorrect, he has thrown light on many matters. The chief part of his manuscript some of us saw before it was deposited in the British Museum. Copies of his early edition are rare, consequently, that one which Mr. Freeth bequeathed, *inter alia*, to our shelves, is of special value to us. Tonkin copied and to some extent corrected much of what Hals wrote, yet only portions of their writings have been printed.

We now possess most of the manuscripts which Tonkin is known to have penned (as I hope to shew in a separate paper) including his Parochial History, and we are particularly fortunate in having had his Natural History (illustrated with his own sketches) presented to us by Mr. Basset. That work has never been issued in any form, and was lost sight of, for a long period.

The Whitaker manuscripts received from Tehidy have yet to be fully examined. Most of that author's writings, I am told, were given to the College with which he was chiefly connected at Oxford.

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Ellis and White, and by Mr. W. C. Borlase. They were sold in February, 1887, by Messrs. Sotheby, Wilkinson, and Hodge, to B. Quaritch, and through him to our Institution for £78 15s.

Thus the 3 volumes, comprising the whole work, after remaining dispersed for more than a hundred years, have been brought together again—and have thereby been considerably enhanced in value, as an entire set.

The Taunton collection given to us by Mr. Stokes will prove most useful to anyone who may undertake to write a History of Truro. The donor informs me that he entrusted other papers of the same series to the late Rev. E. G. Harvey of Mullion, who was contemplating the production of a work of the kind. The author, compiler, and collector of these papers was Richard Taunton, M.D., F.R.S., Senior Physician of the Royal Cornwall Infirmary at Truro. He married a daughter of Whitaker, and, having died in 1838, was buried in St. Mary's churchyard. Let us hope that the excavations for the Cathedral have not disturbed his remains. Several old records are preserved amongst his manuscripts. Some relate to the castles of St. Mawes and Pendennis, others to Penryn; two well-preserved sealed parchments, dated A.D., 1394 and 1504 respectively, describe a Hopkyn endowment in St. Mary's, Truro, and a grant, by Arundell, of stone for building the Tower of the same Church. Copies of these I have made, to lay before you.

The Wallis manuscripts have been bequeathed to me, and I hope to be able to select from them some that may be of value to this Institution. The Rev. John Wallis, M.A., F.S.S., Vicar of Bodmin and Archdeacon's official, was the author of the Bodmin Register, Cornwall Register, and other published works, including ecclesiastical maps of the Diocese. His twin brother Capt. Wallis of the 15th Madras Native Infantry, was engaged in surveying India for the English Government. Their father John Wallis, Attorney at Law, was Vice-Warden of the Stannaries of Devon and Cornwall.

Biographical notices of the several writers whom I have named and accounts of their works have been given in the Cornish Bibliotheca and Collectanea, also in the Journal of the British Archæological Association,\* and in the Volumes of our own Journal.†

In concluding this address, I would allude to the following pleasing facts :—We have not lost any member by death during the past year. Our county has reaped the benefit of extended Railway accommodation, the Helston and the Bodmin lines

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\*Vol. 33, p. 35.

†Vol. 4. pp. xxv. xxvi. of Annual Meeting 1873, and Vol. 6, pp. 163, 167, &c.

having just been opened. Increased advantages in the use of electric Telegraphs and Telephones, with greater Postal facilities have been accorded to us, Electric Light and Power as well as the power of Gas and Steam are severally making their way in our midst, Steamers convey our western products to the market, Education is advancing, Lifeboats are supplied if Harbours of refuge are denied, and altogether, in spite of the vicissitudes attending Agriculture, Mining, Fishing, and Trading, our County continues to be a fairly contented part of Her Majesty's domain.

## THE EARLY TOPOGRAPHY OF FALMOUTH,

ILLUSTRATED BY MAPS OF DIFFERENT PERIODS OF TIME.

By H. M. JEFFERY, F.R.S., *Vice-President.*

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Hoc, quodcunque vides, hospes, qua maxima Roma est,  
 Ante Phrygem Æneam collis et herba fuit.  
 Atque ubi Navali sunt sacra palatia Phœbo,  
 Evandri profugæ concubuerunt boves.—*Prop, Lib. IV.*

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### I. On the early names—Smithick, Pennycomequick, and Porthan.

The usual derivation of Smithick—partly English, partly Cornish—was assigned by Hals (*Collections*, 1685—1736), “the Smith’s creek, leat, or bosom of waters, from a smith that lived at the creek, or cove, now in the centre thereof.” Britton and Brayley (1801) would write the word Smithwick, and pronounce it Smithike, but the hybrid mixture of English and Saxon was equally unlikely in Cornwall in early times. Dr. Bannister considered “Smith” to be corrupted from “smooth,” as in Smithfield, and is followed by Mr. Worth (*Guide to Falmouth*, 1876). Considerable doubt is thrown on these etymologies by reference to two unconnected maps of Elizabeth’s reign. In Burleigh’s map (Plate A), at the headland, Pencarven Point, on which the new quay of Flushing now stands, St. Metheke is written; and in Boazio’s map, 1597 (Plate D), St. Mithick’s Roade is placed off the Green Bank, or site of Dunstanville Terrace, probably to denote the inner harbour. (Carricke Roade is entered, but not King’s Roade, or the inner harbour, mentioned by Carew in 1602). Mithick or Methick the saint (in Cornish, physician) is nowhere else recorded; but the possible corruption of the name by slurring into Smithick is justified by the analogy of Seleven, Slutswell, Swalloch, Swynnear, from St. Leven, St. Iltut’s Well,

St. Walloc, St. Wynnear, which are given by Dr. Bannister. Smeddick, another form of Smithick, is given by Hals as current in his day. (Hals, quoted in MS. Notes to the *Volubiad*). The variant Smethick occurs in the *Calendar of State Papers*, for 1617, and Smitheck in the Penryn Petition cited on page 157.

Pennycomequick, although currently used as an alternative name for Smithick, and expressly recited in the Proclamation of 1661, was in reality a nick-name. "So early were they (the Penryn interest) jealous of the growing of Smithick, nick-named Pennycomequick" (*Killigrew MS.*, 1737, by Martin Lister). The legend about Pennycomequick and its consequent etymology have been exploded. Thus Davies Gilbert wrote in 1838:—"Pen-y-cwm-cuick is, in good Welch, the head of the contracted dingle. Pen-y-cuick, near Edinburgh, is another form. This corresponds with the valley going up from the Strand by the market-house." To this origin it is objected, that the name does not suit the locality of Smithick: it might have been applicable to Tresayre or Trevethan; but we know from the house map and the field map of Arwenack Manor-office, in 1721, that no house lay to the west of the Market Strand, and no road was made up the Moor. Different sites have been assigned to the house Pennycomequick, neither of which suits the Celtic etymology. According to Thomas, the historian of Falmouth (1827, p. 51), the house called Pennycomequick is said to have stood on the north side of the creek, at the place now called Market Strand. On the other hand Whitaker\* placed the scene of the legend, not in the Moor, but on the hill opposite to Flushing, near the new Green Bank quay, and described the walled cottage minutely, where it was formerly

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\* The Rev. John Whitaker the indefatigable antiquary of Manchester, and Ruan Lannyhorne in this county, (of which parish he was rector from 1771 to 1808,) accumulated materials for a Parochial History of Cornwall, basing his notes on Tonkin's History of Cornwall. The portion of the Whitaker MSS. from which the extract was made for the Appendix, was presented to the Royal Institution of Cornwall by Mr. Basset of Tehidy.—See p. 144 of the *President's Address*, and the *Appendix with Note*.

Britton and Brayley have evidently had access to Whitaker's MS. in his life-time, and have quoted largely from it in their description of Falmouth (*Beauties of England and Wales*, Vol. 2, p. 442 to 452), but without acknowledgment. They have probably preserved extracts from the missing portion of Whitaker's M.S.

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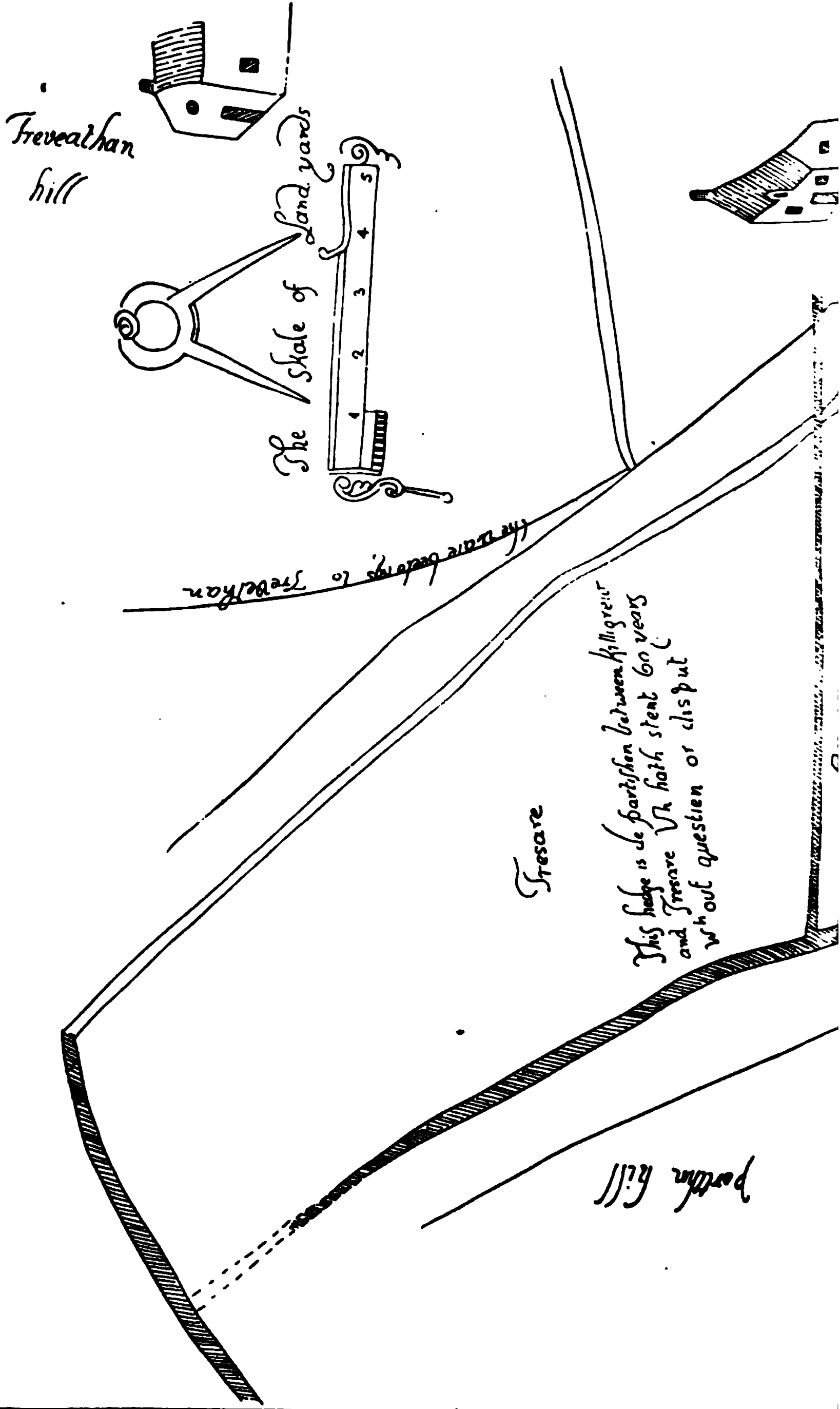
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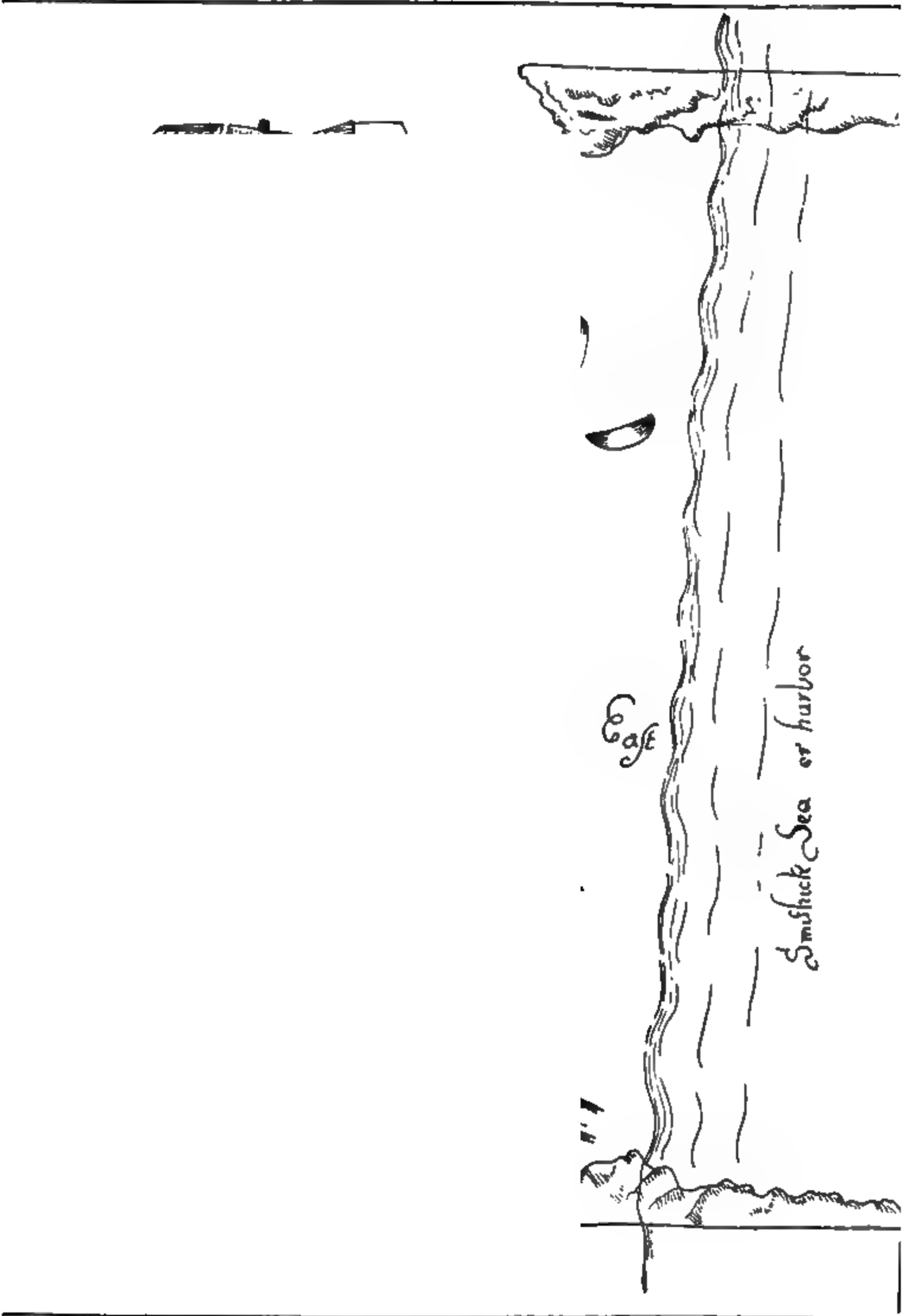
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# PLATE C





East

Smilick Sea or harbor



seen by Mr. Worth (p. 67).† A fresh explanation may be offered. In Boazio's map, 1597, (Plate D) an isolated house, possibly a belvidere, is drawn on such a site on the hill-side, rectangular in plan, and surmounted by a tower and spire, and designated by the odd name "Three farthings house." This suggests a reasonable explanation of the legend, and of the nick-name of the village-town.

Porthan, an older form of Porhan, deserves particular attention. This name, which is still embodied in the local nomenclature, is believed by the writer to be the oldest Cornish name for the locality situate between the Moor and Arwenack. In Burleigh's map (Plate A) Porhanwithe is placed off the Manor Mills at the Bar, and occurs in leases drawn of those mills for the Bluetts at the Manor Office. In Boazio's map, 1597, (Plate D) "Porengassis Baie" denotes that part of the harbour which lies south of the present Market Strand, at which the slight inlet or cove is designated "Lyme Kill Baie." In the unique map of Smithick village—1613-1650 (Plate C), described below, there is written "Portth(a)n Hill," on the site of Wellington Terrace, overlooking the Moor. At present Porhan Hill denotes the upper portion of the lane or street, lately re-named Smithick Hill; but in the description found in the old leases, the high ground westward of the Church and Arwenack Streets, which has been from the earliest times the approach to Arwenack House (See Burleigh's map—A), is termed generically, and not specifically, Porhan Hill.

In Cornish, Porthan Hill, means the Port of the Haven, just as Porth-karn-haun in Endellion parish (quoted by Britton and Brayley) is interpreted to be the Port of the Rocky Haven.

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† "The house in the town is to this very day shewn at the northern end of the whole and shewn under this very appellation of Pennycome-quick. It still remains upon what was actually the land of Pendarves, but now belongs to Sir Francis Bassett.

It has a small walled court before it, facing with it the sea; is still thatched in one half of its roof, and is still an ale-house, and still retains a fading remembrance of the name, which it formerly bore, Penny-come-quick.

It is near the quay opposite to Flushing and a little on the right of the long flight of stone steps, by which you ascend from the passage boat that plies between Flushing and Falmouth, and has the mark of an ancient door, as of an ancient window, in the wall which turns its back towards the land (1794)."—(*Whitaker MSS., Royal Institution of Cornwall*, pp. 219b to 220.)

Other instances of like clipped names occur in Boazio's map: Porquin Baie for Porthgwidden, Porrqueu for Porthkuel, and Porr Yust River for the Porth in St. Just Creek.

## II. On the topography of the town of Falmouth.

The houses and streets were built beside the roads or paths, so that it is important to examine the thoroughfares in Burleigh's map, 1567, (Plate A) in which they are clearly depicted. Two existing roads led from Arwenack to Penryn, in the reign of Elizabeth; (1) over Porhan (now Smithick) Hill to the Market Strand, thence to the High and Beacon Streets; (2) by the Woodlane to the Cross Lanes, where a cross was erected, and thence by Trescobeas and the Bishop's Palace (now Poat's Court) and Glasney College; (3) a private road or foot-path above the cliffs over fields connected Arwenack House with the Strand near the foot of Porhan Hill.

The houses appear to have been erected in the following order. Between 1597 and 1613, the village of Smithick sprung up on either side of, but not on, the Market Strand. At the former date only two detached houses appear, besides Arwenack, neither of them at, or near, the Strand, although we may conceive, with Thomas (p. 57), that fishermen's cottages co-existed on the Hills, called Fisherman's and Porhan. In 1613 we learn its exact situation from the petition presented to James I, from the towns of Truro, Penryn, and Helston, that the erecting "of a town of Smithike," where it was proposed by Sir John Killigrew because of *the creek, or cove, now in the centre thereof*, would tend to the ruin and impoverishing of the ancient "coinage towns and market towns aforesaid." Fortunately there is preserved at the Manor Office a unique sketch-plan of Smithick (1613—1650), which appears to have been a boundary map, possibly for use in a court of law; it is herewith published (Plate C). The commencement of the High Street is shewn, but its lowest house scarcely reached below the entrance to Webber Street. There are two or three houses on the North side of Webber Street, a few fish cellars on the south side, but no house stands on the Strand, which is terminated westward by "the moore hedge towards the sea." There is no thoroughfare through the Moor or to Trevethan except by Webber Hill, "the waie leading to Trevethan."

Parallel to the moor hedge, but a long way back, a boundary hedge appears to line the moor to the S.W. "This hedge is de partishen between Killigrew Tresare wh. hath stond 50 years w<sup>h</sup>out question or (d)isput." Across the moor two water courses are drawn, the old and new, so termed herein.

South of the Strand two or three inns, with sign boards and water stairs, abut on the beach, on the site of the King's Arms Hotel. These would seem to be two of the four victualling houses for the relief of seafaring men, "and the better accommodation of shipping." (*Killigrew MS.*) allowed by King James I. to be erected by Sir John Killigrew, on his lands at Smithick, near Falmouth, on his engaging for their good behaviour. The King's license, apparently, was not necessary for other buildings. To the West of the "high waie" leading from the Strand to Porhan Hill, there occurs a group of four or five houses. The water off the Strand is entitled "Smithick sea, or harbor;" and parallel to it is "the high waie."

This map was probably drawn soon after 1613,\*—if we may be guided by the small extent of the village of Smithick, for, when the Parliamentary forces were quartered in it in 1646, it was much developed. Hals (*Collections*, 1635—1636, p.128), has stated the following facts for our guidance: "And verily I have been told by some aged persons lately living, that they remembered not above *five* houses standing in the place." The next quotation from Hals is taken from MS. notes on the *Volubiad*, a satirical poem on Falmouth: "The original village, out of which Falmouth rose, was called Smithick or Smeddick, and so insignificant as to contain only *sight* houses."

Two traditions are confuted by these ancient maps. The earliest entrance to the town was conceived to have passed through Trevethan Lane, and to have skirted the head of the Moor (Britton and Brayley, *Beauties of England and Wales*, p. 450); but a plan of the Barton of Trevethan. made in 1686, simply gives a path to the Swanpool as an exit. Another tradition is given by Thomas (*History of Falmouth*, p. 57). "Probably the creek of

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\* Whitaker, MS., R.I.C., p. 581, confirms this estimate of its date by a quotation from it: "The Sellar in question was recovered [by] S<sup>r</sup> Jo. Killiegriū about nine or ten years past." Sir John died in 1633.

Smithick was left dry at low water ; but it is said that a ferry boat used to ply across, at, or near, its mouth, when the tide was up ; but, as the population increased, the creek was filled up, protected by a sea-wall, and the buildings were extended on its northern side, up the hill." This tradition does not refer to the submerged forest of prehistoric times,\* which was discovered in 1871, covered by sand, but may be a confused account of the ferry, which plied to Flushing from Smithick, but afterwards from Well Beach, and which was reserved to Sir John Killigrew, in 1661, but has since been withdrawn to the Green Bank Pier. The brook, which is drawn in Boazio's map, 1597, (Plate D) could not have been charged with more water than at present : a road traversed it in 1567, and old and new water courses are shewn in the map of Smithick (Plate C), 1613—1650, passing underneath the causeway. It must be admitted, however, that at high water the road across the Strand was impassable.

At the southern end, the houses did not spring up first on either side of the lane to Porhan Hill, but on the line of the field-path to Arwenack, to form the Market and Church Streets.

An interesting account is given by Whitaker, of the manner in which a ledge of rock, or spur of Porhan Hill, had to be removed for the purpose. " Accordingly, on the little knoll that runs up from the Market Strand to the south, and on the left hand side of the street, that begins at it, the second house appears to have been prior to the street, from its face turning to the sea, and its back abutting upon the street. It was built with its back to the hill, the street there being only a ledging of the hill cut down to a level, and the entrance from the street into that house being by a flight of steps. The wall of the back has been opened for windows, since the street was formed behind it. The Standard Inn (now the Hotel) has been built directly before it : and what was once the shelving beach in front of the house, is now the back yard and water-stairs of the inn. It is a low house,

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\* See its description by Mr. H. M. Whitley in this Journal, April. 1872. This submarine forest was noticed in the last century ; " in the winter of 1790-1 after a very high tide and consequently as low an ebb, in the beach a few yards to the north of the Market Strand in Falmouth were seen and dug up, several stumps of trees that were yet rooted in the soil and ranged in a line down into the sea."—*Whitaker MS., R.I.C., p. 228b.*

remembered to have been once all covered with thatch." The house in question was probably the most southern of the middle row in Market Street, recently demolished, and adjoining Mr. Grose's present house: for the ledge of rock was cut away immediately opposite, and we can thus explain the present sharp angle and bend in the street. The hotel is now called the "King's Arms."

I will extract a further description of the growth of the village-town from the same authority: "It was, however, only a double (? single— H.M J.) line of houses, probably as being all at Smithwick, facing equally to the sea, and to the land, running from the Smith's house, the custom-house, and the market house, along the verge of the harbour, pushing out into the tideway itself, yet looking (like the smith's house and the market-house) only across the harbour. All this low range of ground, at the foot and side of the steep hill, was apparently considered then as the beach of the sea, the Market Strand still lying at one end, and the Fish Strand at the other. A little on the northern side of the Fish Strand, in sinking a well a few years ago, was found, about fifteen feet from the surface of the street, a layer of pebbles; the layer, about two feet in thickness, and the pebbles evidently rounded by the dashing of the waves." —(Whitaker MSS., R.I.C., p. 220b.)

In 1646 the village of Smithick was of sufficient size to give quarters to the greater part of two regiments: Smithick and Penryn were also estimated to be capable of accommodating two thousand soldiers.

The following passage is extracted from a letter from an officer evidently high in command, dated Truro, March 19th, 1646:—

"In the way the Generall went into Arwinkle, Sir Peter Killigrew's house, where and in the village of Pennicomquicke we had quartered two Regiments for the blocking up of Pendennis Castle on the land side. The day before the Generall sent thither those two Regiments, the enemy in the Castle set on fire Sir Peter's house, and burnt a great part thereof downe to the ground, and would have done the like with Pennicomequicke, had not our mens unexpected comming prevented them in the Castle. . . . the man of war that hath 40 pieces of ordnance in him which lyeth aground on the North side of the Fort let us passe very quietly through Pennicomquicke and to Arwinkle, which lyes within half musket shot of the enemies outworkes but is blinded by the houses and trees, so that they cannot see those that are on the other side of the house; but when we came off and were



past Pennycomquicke, and advanced into an open field in our way backe to Perin, the ship that lay on the North side of the Castle let flye at us. but their shot (by God's mercy) did us no harme, though the bullets flew very neer us. and one grazed not far from mee, which wee found, and was a bullet of some 12l. weight... ..I verily beleeeve that if the workes were once perfected for blocking of them up, two thousand good foote would keep them in, that they should not be able to break forth and annoy the countrey. Penicomquicke and Peryne will be able to entertain that number very well."

On January 16th, 1652, according to the local historian, Thomas, p. 58, Sir Peter Killigrew obtained from the Commonwealth the concession of a weekly market (every Thursday) and two fairs, having previously (about 1650) succeeded also in transferring the collection of customs from Penryn. The petition to reverse these grants sent from Penryn in 1660, which is printed herewith, assigns them to 1655, and attributes these grants to Sir Peter Killigrew's "interest and solicitation with the late tyrant Oliver Cromwell and vicious suggestions and surmises about 5 years hence."† It is amusing to contrast with this insinuation of disloyalty and time-serving an extract from the preamble of the Charter of Falmouth (1661) recognizing Sir Peter's loyalty and "good, faithful and acceptable services by him the said Peter, as well to us, as to our most dear father the Lord Charles, late King of England, already performed."

Probably the exigencies of the port and the convenience of the neighbourhood, rather than considerations of the politics of individuals or boroughs, outweighed with the successive Governments the opposition of Penryn, as we know them to have prevailed over its earlier antagonism in 1613.

The custom-house was probably in or near Mulberry Square (Corker's Court) : for we learn from the Killigrew MS. that Sir Peter more easily obtained this transference by granting a lease of 1,000 years to Jennings, the collector of customs, of ground, whereon was built 'the late Oarker's house.' (See Plate B). The market-house is also shewn, which stands on the block situated

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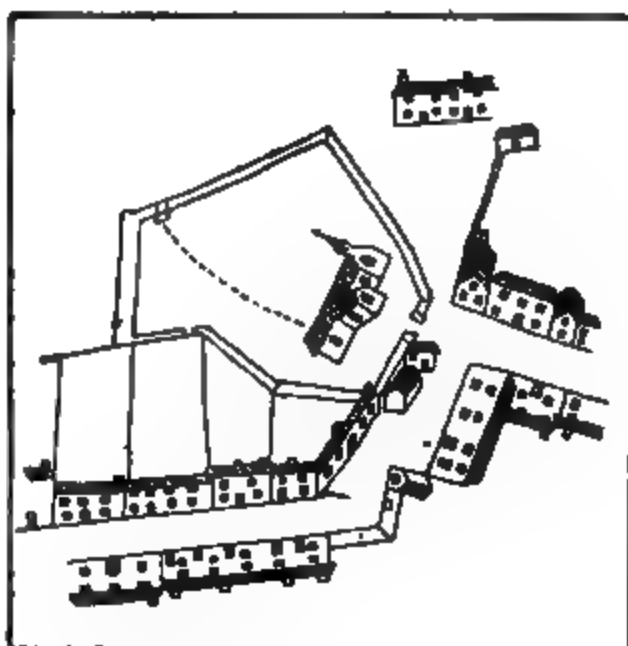
† One would conclude, that Sir Peter Killigrew was a Parliamentarian in 1647 ; for in that year, the year after the surrender of Pendennis Castle, the House of Commons ordered, that Sir Peter Killigrew should be paid £2,000, in satisfaction for his services, and for his losses in connection with his interest in Pendennis Castle (*Comm. Jour.*, Vol. V, p. 19, cited by Capt. Oliver). The same Sir Peter was made Governor of Pendennis by Gen. Monk, March, 1660, on the eve of the Restoration of Charles II, and held the office until 1662.

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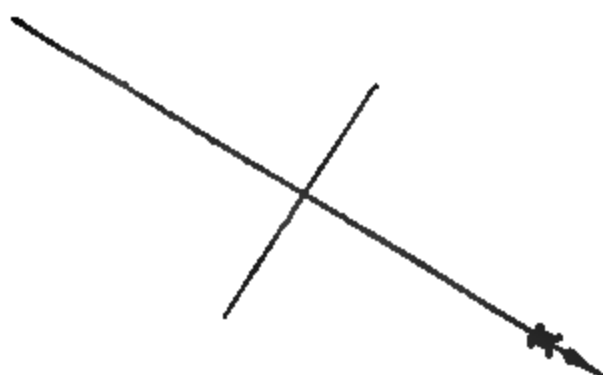
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*Northern Portion of the Town of*

PLATE B

*Falmouth*





between Market Strand and Webber Street. "The Market-house itself was built originally upon piles, because of the unfaithfulness of the artificial earth below (*i.e.* over peat,—H M.J.): it was lately rebuilt to be enlarged, and, being thus carried beyond the range of the piles, began to crack in its frame from the subsidence of its foundations, and was actually obliged to be re-erected in 1792. And the whole plane of the market-strand, with the whole site of the houses upon the western side of it, from the looseness of the earth under all (add: and the peat formation below,—H. M. J.) sensibly shakes and trembles, on the passage of a carriage over the street. On building a brew-house in the Moor just behind the market-house, in 1794, was found a bed of beach-sand (river sand ?—H. M. J.) under the surface of the ground."—(Whitaker MSS., R.I.C., p. 219 b.)

In 1663\* the parish church was built on a site to confront the extending houses in Church Street: and at that date one would suppose that no street was contemplated to the south. In a map of Cornwall, surveyed by Gascoyne (if it is trustworthy), the houses lie at some distance northward of Falmouth Church: this map was subsequent to 1670, for it gives the town quay, built by Sir Peter Killigrew in that year.

In the house-map of Falmouth, drawn by George Withiell in 1691, and preserved at the Manor-office, of which the central portion is here engraved (Plate B), Arwenack Street appears complete as far as Quay Hill, but no other streets occur southward of the church. Two main obstacles appear to have encountered the men, who designed the streets of Falmouth. The first obstruction, as we have seen, was caused in Market Street by a spur of Porhan Hill: the position of the church and the inlet of the harbour, known as Harvey's dock, hindered the extension of Church Street, and necessitated the double inflexion to reach Arwenack Street. In 1691 no road traversed the Moor to the S.W.: Webber Street alone existed, communicating with

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\*The following extract from the Act of Parliament (1664), which separates the town and parish ecclesiastically from the parish of Gluvias or Chapelry of St. Budock will illustrate the habitual sense of danger at that period: "so as the said Mayor and townsmen cannot repair thereunto (the parish church of Gluvias) with conveniency and security to the said town of Falmouth, lying open to the sea."

Trevethan by Webber Hill. A few houses are drawn on Porhan Hill, but do not constitute a street. The town was built parallel to, and confronting, the harbour.

In 1773, New Street had been built, besides rows of houses on Quay Hill and in Swanpool Street. A road had been constructed from Market Strand along the south side of the Moor: but, so lately as in 1812, the Moor itself was laid out in gardens, and the houses were confined to its eastern end between the Brewery and Market Strand. A map of the Moor Gardens is preserved at the Manor office.

In 1773, High Street was completely built as far as Well Beach, which appears to have originally terminated Smithick; but Beacon and Prince's Streets were only begun, as its continuations: no house was built on Dunstanville Terrace, which sprang up subsequently beside the lane which led to the ferry.

On the development of the town since 1812 I do not propose to treat:—at different periods different localities have been popular as building sites; thus in 1816 the Moor, and Stratton Place, and other terraces on the Penwerris suburb were in request. The influence of the railway terminus and the Docks, and the preference given to marine views, have recently given an impetus to building on the Woodlane suburb. On the high ground, which was formerly known as Arwenack Downs, healthy rows have been multiplied to accommodate artizans and residents of small means.

On leaving the subject of this memoir, I cannot help repeating the desideratum, which has been often insisted on, of an esplanade or harbour embankment, which should skirt the town from the Green Bank pier to the Town quay. The late Lord De Dunstanville, the owner of the north-western extension of the town, urged it upon the other proprietor, but met with no support.—(Osler, *Royal Cornwall Gazette*, July, 1858). It has been stated that a responsible contractor would have constructed such an embankment for £10,000. If the terminus of the Cornwall Railway had been made, according to the original survey, at the upper end of the inner harbour, this improvement would have followed in due course: but at present the prospect is remote.

PETITION TO RESTORE THE CUSTOM HOUSE FROM FALMOUTH TO PENRYN,  
A.D. 1660.

To the King's most excellent Ma<sup>tie</sup> The humble petition of the Mayor Aldermen and Burgesses of the Burrough of Perryn in the C<sup>ty</sup> of Cornwall In all humilitie sheweth

That the said burrough is very antient a Towne corporate and Markett Towne comodiously sittuated on the harborrough of ffalmouth and sendeth two Burgesses to the Parliament and hath beene very faithfull and loyall to the Royal interest of the Crowne of England (for which they have much suffered) and tyme out of mind the Custom's house for receipt of yor Ma<sup>ties</sup> customs hath been kept there.

But soe it is (May it please yr sacred Ma<sup>tie</sup>) that Sir Peter Killigrew who is seised of certaine Lands on w<sup>h</sup> is built a new erected village called Pennycomequick als Smitheck distant about a mile from thesaid Burrough takeing advantage of the troubles and incumbrances that lay on yor pet<sup>ers</sup> in respect of their Loyalty and faithfulness to yor Royall father of glorious memory and to yor sacred Ma<sup>tie</sup> by his interest and sollicitaion with the late tyrant Oliver Cromwell and vicious suggestions and surmises about 5 years since pro(c)ured the said Customs house to be removed from the said Burrough to the said Village and alsoe a weekly markett and ffaires to bee kept there to the totall decay of trade in the said Burrough and ruine of yor pet<sup>ers</sup> and utterly disabling them to spare such sumes of money as they ought and are willing for the use of yor Ma<sup>ty</sup> or to serve yor Ma<sup>ty</sup> in that measure they have formerly donne and their heart's wish yr Petitioners must humbly beseech off yor Ma<sup>ty</sup> to take their deplorable and sad condition into consideration and to order the Commissioners for the Customs to remove the said Custome House again to the said Burrough and that you would bee graciously pleased not to graunt any faires or marketts to bee kept at ye said Village which yor pet<sup>ers</sup> are enformed the said Sir Peter endeavours to pcure and if he hath gotten any order or warrt for the same yor Ma<sup>ty</sup> would bee pleased to recall it.

And yor pet<sup>ers</sup> as in duty bound shall ever pray.

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APPENDIX.

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Since the preceding pages were in type, the Editor has drawn my attention to Whitaker's comment (p. 225, MSS, R.I.C.) on the map of Smithick sea, or harbour, which contains valuable information on the early Topography of Falmouth, and deserves to be published *in extenso*.

Mem. June 28th, 1792—I saw for the second or third time a small old map of Falmouth, belonging to the Lords, and kept in the office of their steward Minehead; and made the following extracts from it.

At the bottom of the map is "Smythick sea or harbour," that part of the harbour which adjoins to Smythick as I previously placed it.



Next above is "The Strand in land yards," by a scale at the top of the map. Two boats are drawn up upon the strand, which shows it to have then been, not raised as now above high water mark, but as it naturally was, a level beach to the sea, upon one end the north, "the stone which was the bound" of the strand on the right at the corner of a lane, and which stood, at the north-eastern angle of the house facing the lane to Webber's Well and Trevethan; a road running directly from it to Trevethan in the map, as this lane runs at present; and another road going on the left of it, as the road to Penryn goes at present; a ladder is seen at this house descending the bank towards the sea; but at the other end the south are three houses being what I have previously pitched upon for Smithwick, another house where a part of the hotel stands at present, and a third house beyond Smithwick to the south.

Upon one side of these houses appears a road, just as a street is carried at present, and a couple of houses is seen on the other side of that road.

Above or west of the Strand is "The Highway," being the present street from Penryn to Falmouth Church, as it extends along the Market Strand, &c.

Above or west of this is "The Moor Hedge towards the sea," being the eastern boundary of the present Moor.

Above both is this remark, "it appears very evidently by four measures, that part of the Sellar with the courtledge stand up to higher than Killigriu's lands." Upon one side, "the court ledge to the Sellar." Below, "The Sellar in question was recovered [by] Sr Jo. Killiegriu about nine or ten years past." A house beyond. Below, "Killigrews' land," "Tresayers land."

Two water-courses are thus marked :

N.B.—The new is evidently that, which discharges itself now at the Hotel. The old was evidently one which discharged itself about the Market House.

Towards the top of the map, near the left edge of it, is "Porthhan Hill," Porran Hill at present, and meaning evidently now, as I have explained it before.

Falmouth therefore, or Smythick as then called, consisted, when this map was made, only of one house at the northern end of the Market Strand, being at the north-eastern angle of it, five houses at the southern end, being three at the south-eastern angle, and two at the south western. Porran lane is not in the map, though Porran hill is; because the houses did not then reach beyond the former.

This is the oldest account that we have of Falmouth, posteriour to the construction of the house called Smythwick,\* when this house was built, as I have observed before, there was no road where the present street is, because it was built with its front to the sea, and with its back to a bank of rocks, the original side of the hill. It accordingly appears built with the stones of the rock, is very long, and three or four feet below the level of the street.

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\* Whitaker alone spells the name thus, to suit his derivation. His facts may be trusted, but not his inferences or theories without reserve. As has been stated, Britton and Brayley, write "Smithwick," after Whitaker. Smethwick is a town in Staffordshire.

Burghley's map (Plate A) 1580, gives, on this site, a solitary building, a lime-kiln (Lym Kill), from which the inlet is called Lymkill Baie by Boasio (Plate D), 1597. I believe Whitaker had no authority for his "house called Smythwick."  
—H.M.J.

The next era of Falmouth's enlargement must have been very near the date of this map, and is marked by a circumstance expressive of the fact. Just beyond my Smithwick, and its western house upon the left, and beyond that were formerly two houses but are now three on the right, and Porran lane beyond these, a house comes forward upon the full line of the street, occupying the space which it should have occupied, and obliging it to divert on the left in order to continue its course. This therefore is a significant signature, that the town stopt in its advance to the south for some time at this point.

The next enlargement was a great one. From this grand diverticulum it ran on to the ground and vicinity of the Church. This it reached or nearly reached about 1662, the Church being then said to be at the end of the town. Accordingly the street here was making another grand bend, the church and a house coming athwart it, and forcing it to turn on the left for a continuance.

In this run however, a part of the new street was made a secondary Market-place to the original one on the Strand: and took the name of Fish Strand, as the original did of the Market Strand.

Had the town and its improvements been planned all at once the MOOR would have formed an excellent dock, a convenience much wanted in the town, and now likely to be made at a very great expense by the Lords; as it runs about three hundred yards up in a narrow hollow between two high hills, and has a back-water to keep it open.

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Whitaker states, MSS. B.I.C., pp. 222, 223<sup>b</sup>, 224: That under the Act of Parliament—the rector of Falmouth received the port duties of 6d. of each decked vessel entering the port, and in return for this he is obliged to keep a pole and flag upon the rock at the entrance of the harbour. The pole was an elm as big as a man's body fixed deep in a hole of the rock and fastened in it with melted lead. A red streamer is kept flying from the top of it, to strike upon the eye by its colour, the pole is also for the same reason stripped of its bark, very white and twenty feet high from the rock.

The pole and flag were meant to be removed in time of danger, and were so removed in the autumn of 1779, when the French and Spanish fleets sailed in great force up the channel.

ON A MAP OF PART OF THE PARISHES OF BUDOCK AND MYLOR,  
DRAWN ABOUT A.D. 1580, WITH A NOTICE OF ARWENACK  
HOUSE.

Exhibited by HENRY M. JEFFERY, F.R.S., Vice-President.

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This map (Plate A) is extracted from a book of maps, which is preserved in the British Museum ; it contains Lord Burghley's hand-writing, and may be quoted as Burghley's Map. It gives a ground-plan, not based on a survey, but carefully sketched by an artist without actual measurement from Mylor Pool to Pennance Point. Pendennis is drawn in elevation, and its extremities must have been sketched from positions far apart.

We are indebted to Burghley's map alone for our knowledge of the manor—and farm—houses of Budock and Gluvias, which were standing in Elizabeth's reign, of their churches, of the town of Penryn and, in its outskirts, of Glasney College, and the Bishop's Palace (now Poat's Court), and Arwenack House, the precursor of Falmouth, in the main still standing. Pendennis and St. Mawes Castles are also drawn. By the aid of this map, so clear and distinct, and of existing remains, Mr. Dunstan of Penryn has reproduced a plan and drawings of Glasney College and Arwenack Manor House. The former were published in the 47th Annual Report of this Journal, 1865, by the Rev. C. R. Sowell, of Gorran, to illustrate his valuable monograph on the Collegiate Church of St. Thomas of Glasney. Of the College Chapel dedicated to Thomas-a-Becket the tower alone appears in Burghley's map : but Mr. Dunstan has reproduced the whole edifice by the help of the existing foundations. The rest of the Monastic Buildings appear intact. We must therefore infer that in the interval between the dissolution of Monasteries in 1545 and 1580, the probable date of this map, demolition had begun. The map, however, may be some years earlier.





In Boazio's map, of 1597, the rest of the buildings of Glasney College appear as scattered ruins. It is unnecessary to dwell on Glasney or Penryn, as Mr. Michell Whitley, after quoting the Commissioners' Reports on Glasney and Gluvias Church, has also described from this map the river stockade, the butts, the Palace, the College Mills, the Penryn Manor Mills, and the east and west woods. (Cornish Chantries, 1882).

It may be thought desirable to insert here some notice of Arwenack. The present house was built in 1567\*—the year of his death—by John Killigrew, the first captain of Pendennis Castle, and largest landowner in the neighbourhood. A sketch of the former castellated house is drawn in Lysons' Cornwall (Britannia) as it appeared before 1544, but the name Arwenack is not mentioned.† Mr. Martin Lister Killigrew wrote in 1737 that Arwenack House was the finest and most costly house then in the county, as to "this time in part appears by the stately hall window still standing."

The buildings inclosed a quadrangle on three sides (see ground plan of Arwenack—Plate E); on the fourth side there faced the harbour a tower with flanking walls, of which no trace remains. On the south and north sides there were distinct suites of apartments; on the west side were the kitchens, which communicated into the banqueting hall, which stood apart at the S.W. extremity. The large oven and open chimneys are still to be seen in the kitchens. That which seemed a tower in the angle between the hall and the south side of the house, was open behind, so that it must have formed part of other buildings, not now recognised. The circular tower at the north angle of the original structure is pierced with loop-holes, for musketry to command the front and north wall: in the map there may be also noticed a stockade to cover this north wall. In other maps an earthwork or "barycade" is shewn, which covers the approach seaward. Several stone balls are found, which were

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\* Hals "Parochial History of Cornwall," p. 126, wrote that Sir John Killygrew, Knt., in 1571, built the greatest part of the Old House now standing there.

† The word "Gyllingdowne" thereon, refers to a proposed fort, which was never erected.

originally placed not at the portal, but as finials over the gable ends of the house. The cantilevers over the arched entrance may have supported a coat of arms or hatchment. The stables still remain between the house and the original approach. The walled gardens, the ponds, the extensive park, whose railings ran in an irregular line from Swanpool to Market Strand, all attest the taste and opulence of the Killigrews.

A few notes on the history of the house are added. In 1595, during the occupation of the third John Killigrew, an attempt was made to set fire to Arwenack by Spaniards, in the same year in which Mousehole was burnt by them. (Mr. H. M. Whitley, *R.I.C. Journal*, Vol. viii, 292-7). The whole of the S.W. coast was in constant terror of depredations in early times: forts or "barycades" were either formed or designed, among other landing places, on Trefusis Point and Gyllyngdowne.

In 1646 this mansion was burnt by the garrison of Pendennis Castle on strategical principles to prevent its occupation by Sir Thomas Fairfax and his army. That its demolition was not complete, as many writers have assumed, we gather from an extract from an officer's letter, quoted by Capt. Pasfield Oliver (*Pendennis and St. Mawes*, p. 40). "In the way (to Helford) the generall went into Arwinkle, Sir Peter Killigrew's house, where and in the village of Pennicomquicke we had quartered two Regiments for the blocking up of Pendennis Castle on the land side. The day before the Generall sent thither those two Regiments, the enemie in the Castle set on fire Sir Peter's house, and burned a great part thereof downe to the ground, and would have done the like with Pennicomequicke, had not our men's unexpected comming prevented them in the Castle." Arwenack house was then occupied, and the manor possessed, by Lady Jane Bluett, the divorced wife of John Killigrew. Sir John had died in 1636; Sir Peter (The Post) his younger brother and heir was employed by the Court in foreign missions, and yet had interest with the Parliament in 1647, and with Cromwell in 1655.

The besiegers ravaged the gardens, house, and park in constructing lines of trenches and batteries, so that the owners, Dame Jane and her second husband, Capt. Francis Bluett of

Trevethan, were reduced to great poverty. Depositions to that effect were made by credible witnesses, when Capt. Bluett was sued in 1647, as a delinquent Royalist, to compound for his estate before the Commissioners in Goldsmiths' Hall, London. (*R.I.C. Journal*, Vol. ix. p. 51.)

In the garden between the banqueting hall and the ancient stables, the surface has been raised 4 ft. 6 in. above the original level of a paved court-yard and gutter. Mr. Mitchell in 1883 examined two pits, indicated by dotted circles in Plate E, which he sunk in search of an underground passage, and found throughout charred and burnt materials, wood, lime, ornamental plastering, slates and tiles : doubtless these are the debris of the havoc made in 1646.

The Killigrews continued to reside at Arwenack until Capt. M. Lister Killigrew's death in 1745. The banqueting hall was not rebuilt; and the modern additions at the north and south sides were not made before 1786 (as appears from a sketch of that date), and therefore not by the Killigrews.

The following stanzas occur in the *Volubiad*, a satirical poem written in 1796, in reference to Arwenack :—

“ To spoil this wall a ruthless Vandal came,  
Sprung from the waves, and Tauro was his name.”  
“ A venerable wall for ages stood,—  
The only vestige of an old abode.”

A MS. note on the poem records, that a few years previously a greater part of the house had been taken down and rebuilt; the part, whose loss is deplored, was a ‘noble battlemented tower with a battlemented wall attached to it.’ This was probably the central tower over the water-gate, with the flanking walls.

The ancient house is readily distinguished from the modern additions by the stone mullions of the window frames.

I should state in conclusion that this map (Plate A) has been carefully copied by Mr. Mitchell, of the Manor Office, Arwenack, through the favour of the Town Council of Penryn, from a clear copy, which has been long in their possession : the original in the British Museum is in good preservation, but the outline of Glasney College is blurred by constant folding.



In the ground-plan (E) of the remains of Arwenack house the tinted portions are modern additions. The original buildings were probably more extensive. Mr. Dunstan's restoration made by the aid of the existing remains and of Burghley's Map may be seen at the Manor-office.

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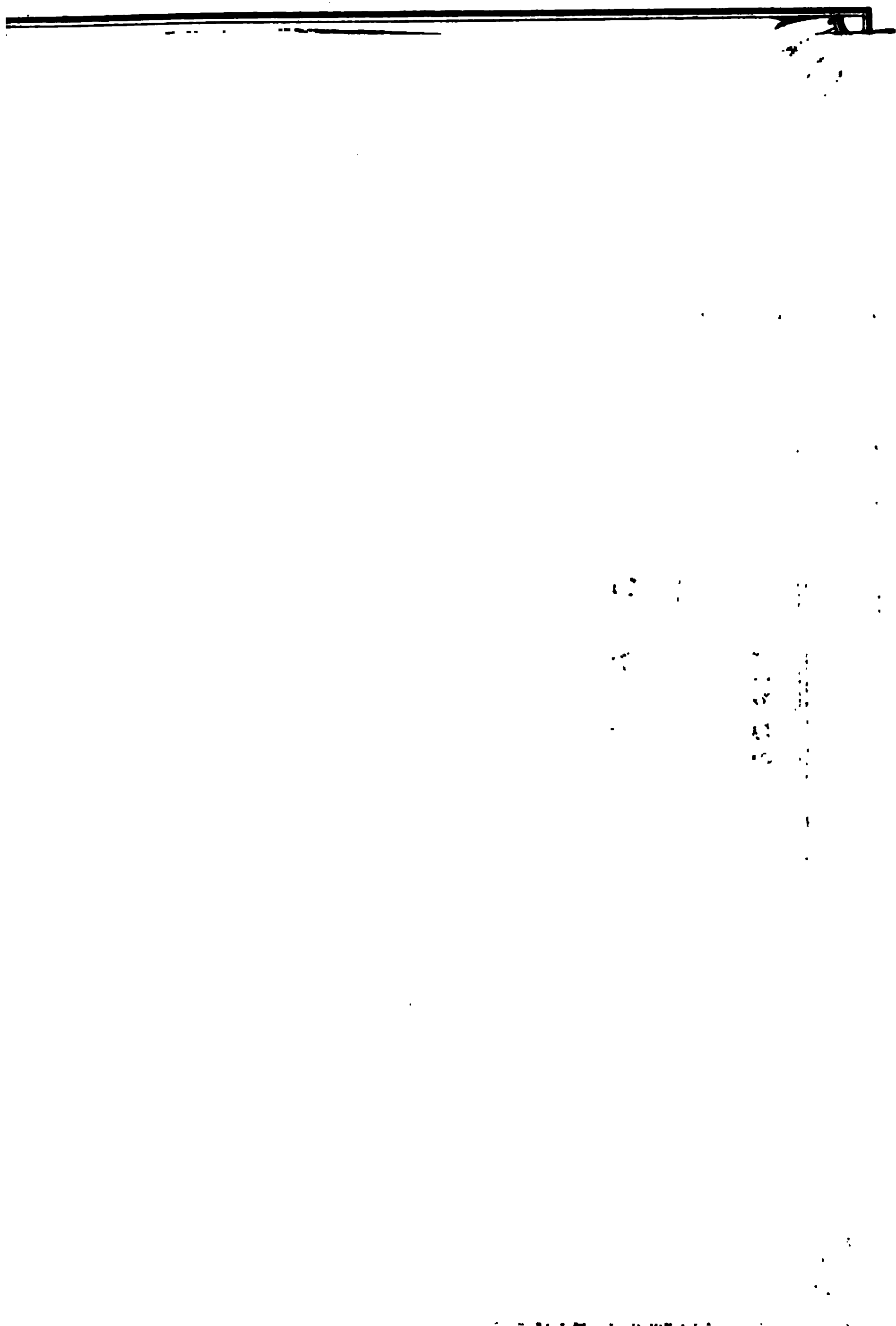
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R O P







**A MAP OF THE RIVER FAL AND ITS TRIBUTARIES FROM  
A SURVEY MADE IN 1597, BY BAPTISTA BOAZIO.**

Exhibited by HENRY M. JEFFERY, Vice-President.

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This map (Plate D) is the first known to have been made from an actual survey, and, although inaccurate in detail, has many claims on our attention. Maps of an earlier date give bird's eye views of the district, and are of little value, as it was shewn by specimens exhibited to the meeting. In Boazio's map the several tributaries of the Fal, small and great, are depicted as they appeared at low water mark: the mud banks ('ose' or ooze) the bars of shingle, and, by the aid of dotted lines, the curves of junction with the fresh-water affluents are exhibited: and in some places (unhappily not numerous) the soundings of deep water are recorded.

Our editor, Mr. H. M. Whitley, first drew attention to this map in 1881, and has since utilized its information in two memoirs contributed to this Journal, (1) "on the recession of the tide in Falmouth Haven," and (2) "on the silting up of the Creeks of Falmouth Haven," Vol. vii, 1881. Mr. Whitley following the lead of the late R. Thomas, has analyzed the causes, and estimated the rate of such silting in the past three centuries (about 1 foot in 30 years in the valley of the Fal), and anticipated the future recession of the tide, which is of deep moment to the trade of all the ports on the Fal. To quote a single instance: the Carnon river in 1597 was navigable at low water, nearly as far as Carnon Bridge, and there were four fathoms of water at Tregose (now Daniell) point, whereas now not a boat can pass two hundred yards above Restronguet ferry.\*

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\* A description of the river and harbour by the late Mr. E. Osler, may be read in the "Cornwall Gazette," July 1858. Mr. Thomas had written on the same subjects in 1827.



Boazio does not profess to describe the interior above a mile from the shore line, but within that scope he lays down plans of Trewro, Tregni, and Pewrin, the several churches, castles, and mansions, and woods, and sometimes the contour of the country. The old streets in the towns can be identified, and the sites of the manor houses determined, where they no longer exist: some mansions or their representatives, such as Arwinick, Cariklewe, Trefusies, Tregothnan, still occupy their original sites, just as the manors connected with those houses are retained by the descendants of their ancient proprietors.

The map, from which the engraving is taken, is not the original work, but is itself a copy preserved in the War Office at the Horse Guards. Errors from ignorance of the locality and from carelessness have crept in during the several stages of transcription: the old English letters have sometimes been misread; and the names furnished by fishermen and others to Boazio were probably spelled at random and often inconsistently. Nevertheless the nomenclature of this map deserves careful study, and the co-operation of different persons who are conversant with their respective localities; my own comments are mainly confined to the neighbourhood of Falmouth. One sees clearly that the English language was in universal use in Cornwall under Elizabeth, as it is in Wales under Victoria: "Porth" and "Pill" are replaced by "cove" and "baie," "place" (plas) by house, and in some cases the Cornish and English names occur conjointly. It is stated (Thomas' *Falmouth*, p. 34) that 50 years after this date, in 1640, the Cornish language was used in divine service at Feock Church on this river Fal. Of the value of this map in fixing the older names of the town of Falmouth I have treated in a separate memoir: I will now comment on other names of places, with much diffidence.

#### FALMOUTH BAY.

Carpenhans Point, Boazio; Carne Pennans, Burghley;=Pennans Point (hodie), so-called after the farm-house—(head of the valley), on which farm it stands.\*

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\* If we follow Boazio, and interpret caer=camp, we may conjecture a Roman camp to have been made here, since in 1865 a hoard of nearly 1000 Roman bronze coins was found in ploughing the field which adjoins this point westward.—(Worth's *History of Falmouth*, p. 59.)

Lake of freshe water, Boazio: Levine Prisklo, Leland: (?)=Smooth browse pool. (Prislow farm lies above its head waters). Al. Goose Pool, qu. Coose (?), late form of Coed (wood). Swanpool (hod.)

Lendieu Rocks=Swanpool Point. (?) Lyn dhu (black pool).

Portlom Cove; (?) bare cove.

Savenlester Cove; (?) Sawenlester (boat cove)=Crab Quay (hod).

Zawen or Zawn (hole in a cliff) is evidently meant.

Savenheer or the long-coved point. Corr. Zawn hir, the long cave.=The Zone or the Zose Point (hod.)

The errors of transcription, and the process of corruption from Zawn to Zose, are clearly visible.

Behurdo Cove, Sand, Baie, are called after Behordo village.

Behurdo should be pronounced, as it is to-day, Bohurtha, (the higher house). The letter *f* with a vinculum meant "th": ex. gr. Stediana=Stythians. We may suppose that the vinculum was overlooked by later copyists.

Melennan Sand; (?) Melinnans (mill or yellow vale)=Melunnen Beach.

#### ST. MAWES RIVER.

Caregnah Point=Carricknath (bare rock) hodie.

Hosloggas House=Bosloggas, probably a copyist's error.

Cook Mill at the left fork of Gerrans R.=Trethem Mill.

Mill (Anon,) or (Anonymous) at the right fork=Tregassa (dirty) or Tregassick or Sea Mill.

Treguer Point, later Cornish form of Tregear, its present name.

Resteeck Place, Rosteg plas, mansion of fair common=Rosteage, *têc* being the older form of *têg*.

Porrquew Point, Cove=Percuil, (?) Gulls' Cove (guil).

Pool Marow (dead)=Porth Creek.

#### FALMOUTH HARBOUR, E. SIDE.

Bugollas Point (Lower House)=Whitehouse Point.

Corclaies Cove near Carclase Point. Green Rock.

Porr Yust River=St. Just Creek. It is still popularly pronounced Yust. (Youst).

## FALMOUTH HARBOUR W. SIDE.

Trevillo Cove, E.=Combe	}	The names are taken from that of the manor, which they intersect. It is thought the creeks were never so called.
Trevillo Cove, W.=Chynalls		
Creek		

Lamou=Lamooth.

Pedn-an-pill Point, older and fuller form of Pill. Pedn was a later form of Pen.

Porquin Baie=Porthgwidden. Gwidden is a later Cornish form of Gwyn (white).

Grilles Rockes=Carrack Carles Rock (Thomas)=the Poles on the Middle Bank.

Pencra Barre, clipped form of Pencarrow. A deep-water channel leads to Mylor Pool between this bar of shingle and the middle bank.

Pennero Point. The point is termed indifferently Penarrow and Pencarrow.

Beacon Point, near John Brown's Rock. Remains of a beacon were standing on Mt. Stewart a few years ago.

E. Trevisam Cove=Kiln Quay, the landing-place to Trefusis. This name seems erroneous, since Trevisam is a mile distant.

Pencarven Point, Pen-caer-vean (Point of the little camp)=Flushing New Quay.

W. Trevisom Cove=Sailor's Creek.

Gonagoras Point; Gone an goras, Burghley; (?) Down of the moor.

Bishop's Wood=Eastwood. In ancient times, Glasney Wood (*vide* Cartulary of Glasney College) included also West or College Wood. Both woods are drawn in Burghley's map.

Penwiries Point E. and W., called after the barton of that name. They have now no distinctive name: perhaps they never had.

St. Mithick's Roade=King's Roade. Smithick seems to be a slurred form. (*Vide* memoir on the Topography of Falmouth).

Porengassis Baie—the harbour between Market Strand and Pengarrick or Bar Point.

Pennero Sand (?) Higher Point. E. of Arwenack House.

Specimens are added of the inaccuracies of Boazio's Map, when compared with a modern chart.

	Boazio's Map.	Chart.
From the Block House, Pendennis, to the Shag Rock, St. Anthony's Lighthouse	E. $3^{\circ}$ N. $1\frac{9}{10}$ miles.	E. $8^{\circ}$ S. 1 mile.
From Pedmesack Point to Turnaware ...	N. $42^{\circ}$ W. 1 mile.	N. $53^{\circ}$ W. $1\frac{1}{2}$ miles
From Sawenheer Point (Zose Point) to St. Roger's Point (Killygerran Head)	N. $48^{\circ}$ E. $1\frac{1}{10}$ miles.	N. $56^{\circ}$ E. $1\frac{3}{10}$ miles
From Pencarven Point (Flushing New Quay) to Penryn Quay ... ..	West, 1 mile.	N. $34^{\circ}$ W. $1\frac{2}{10}$ miles.
From Penryn to Truro ... ..	N. $20^{\circ}$ E. $4\frac{1}{2}$ miles	N. $20^{\circ}$ E. 6 m.
From Truro to Tregony . . . .	E. $2^{\circ}$ S. 5 m.	E. $2^{\circ}$ S. 5 m.
From Penryn to Tregony... ..	N. $45^{\circ}$ E. $7\frac{1}{2}$ m.	N. $45^{\circ}$ E. 9 miles.

The outline of the eastern coast of Falmouth Harbour seems to have been drawn at random: creeks and coves are drawn across a straight coast. The bearing from Mesack to Turnaware is very wrong. On the opposite side Feock Church is placed east and not west of Pill Creek. Diligent scrutiny will doubtless detect many such flaws.

Nevertheless the map surpassed its predecessors in a higher degree than it has itself been improved upon by modern maps and charts. Great credit is due to the foreign surveyor, with his imperfect appliances, and means of information, and limited time. Its value at present rests not on the survey, but on its nomenclature and the picture of the towns and seats on the banks of the Fal.

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ADDENDUM.—The editor, Mr. H. M. Whitley, has stated the information derived from Boazio's map for the Topography of Truro in Elizabeth's reign. "In Truro, nothing was shewn on the south of the river, the town then consisting of the church of St. Mary, with the High Cross, Pydar Street, and St. Mary Street, Old Bridge Street, with some houses on the St. Clement side of the river; King Street, Powder Street (now Boscawen

Street) and some houses stretching towards the Quay, which then existed. A church is shewn at Tresillian Village, and St. Margaret's Chapel, about a mile below Tregoney" (*Journal of the R.I.C.*, Vol. vii, p. 5.)

Mr. Martin Lister Killigrew, seems to have met with this map in 1737, as he writes from St. James' of "a mapp of the Harbour of ffalm<sup>e</sup> up to Truro, done so long since as 1597, when Arwenack house was the only one in the place." There is no copy in the British Museum.

EMENDATIONS OF PASSAGES IN THE ITINERARY OF WILLIAM  
OF WORCESTER, WHICH REFER TO FALMOUTH HAVEN AND  
GLASNEY COLLEGE.

By HENRY M. JEFFERY, F.R.S., Vice-President.

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The extracts, on which comments are here offered, are taken from the memoranda of William of Worcester, which consist of a Latin and English medley of jottings made by him, often unmethodically, in a journey from Bristol to St. Michael's Mount, A.D. 1478. The portion of this itinerary, which relates to Cornwall, was published by Davies Gilbert with a descriptive preface in his *Par. History of Cornwall*, Vol. iv, p. 222—256.

FALMOUTH VILLA.

Two extracts appear to refer to a *town* of Falmouth, and have been accepted in this sense by some writers, but may be otherwise explained.

1.—*Falmouth Villa*: ecclesia Penryn, *Gilbert*, p. 229. I would place the colon after Falmouth, so that the town in question would be Penryn. The MS. probably had no punctuation. In other passages W. of Worcester couples Penryn and Falmouth. Penryn villa prope Falmouth, p. 246. (The embouchure of the river Fal.)

Fons principalis fluminis de Falmouth and Penryn, incipit apud montem de Nevyle per duo miliaria ex parte orientale (i?) de villa de Trewrew, id est per 8 miliaria de Peryn et Falmouth. p. 231.

2.—Memorandum de lez havyns Cornubiæ.

A Pensans usque Plymmouth havyn, et specialiter pertinentes ad havyn de Falmouth sunt 147 portus et crykes.

Imprimis circa *villam Falmouth* sunt 147 havyns infra spacium 70 miliaria a Tavystoke versus occidentem usque portum Markysew versus occidentem et Pensans. p. 244.

Evidently the same note is repeated in reverse order: what is correctly described as the "havyn de Falmouth" in the first sentence is erroneously written in the parallel sentence "villa Falmouth;" obviously William of Worcester confused the harbour with "villa Penryn," to which he assigns it elsewhere. The local historians are puzzled by this apparent reference to a town, which notoriously did not exist before 1661.

DE FUNDACIONE COLLEGII PENRYN.

Locus Collegii prædicti in Penryn ab antiquo vocabatur Glasneyth ia linguâ Cornubiæ, anglicè Polsethow, aliter dictus puteus sagittarii.

Before I attempt to correct or explain this extract, I will quote in illustration the legendary account of its origin, which is given in the cartulary or register-book of Glasney College (1264), which is still preserved, and published in an English translation by Mr. Jonathan Rashleigh, President of the R.I.C. in 1875-77, in this Journal, Vol. 6, 1879.

When thou comest to the place, Glasney, thou shalt search for a certain spot in it near the river of Autre (Antre?) called by the inhabitants Polsethow, which Cornish name being interpreted is "mire, or a pit" (orig. Lat. lutu siue putes, i.e. lutum sive puteus), which said place hath of old time borne much name from the fact, that wild animals in the neighbourhood, when wounded by an arrow, were wont to run thither after the nature and custom of such animals, and to plunge into its depth, and arrows could never be discovered there."\*

Partly guided by the cartulary, I propose to thus amend the passage in W. of Worcester. . . . . Glasneyth in linguâ Cornubiæ, anglicè (green nest), aliter dictus Polsethow, puteus sagittarum.

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\* The cartulary, preserved by Mr. Rashleigh, is probably the College register, whose history is given by Sir Henry Ellis: *Gilbert*, p. 331, and thence copied by Rev. C. R. Sowell in his monograph on the Collegiate Church of St. Thomas of Glasney, 47th Annual Report of R.I.C., 1865 (14 years before the publication of the Cartulary.) The derivations and fanciful interpretations of "Glasney" given by Mr. Sowell after Hals and others, are disposed of by the fact, that the wood was called Glasney, before the College was built. "To him (Walter Brouncombe) thrice in vision appeared Saint Thomas, telling him that it was God's will that, when he returned to his diocese, he should speed into Cornwall, and there on the soil of his Bishopric, namely, in his manor of Penryn, in the wood called *Gla-ne-y*, found and establish a collegiate church with Secular Canons." *Glasney Cartulary*, p. 216.

As the passage stands, one Cornish word is supposed to explain another. We know from Leland that Glasenith meant 'viridis nidus'; and this etymology is now accepted by Celtic scholars, as by Norris. (See Mr. Sowell's remarks on the various derivations of Glasney, p. 27.) In Welsh, as in Cornish, seth=arrow, sethow=arrows, but sethar=archer. In the legend, the etymology points to a moor or miry bog of arrows, not to an archer, although the first half of the word "pol" is alone interpreted. Cf. Polwheele, a miry work. Carew.

I consider sagittarii to be a false copy of "sagittarū," in which form with a vinculum 'sagittarum' would be written, as in the preceding quotation lutū and putēs for lutum and puteus. Mr. Sowell has suggested, that there may have been butts here on the strip of the level ground at the bottom.

A corresponding confused entry in Leland's Itinerary (Gilbert, p. 271) now becomes intelligible. "The first creke or arme that castith out on the north-west side of Falemuth, goith up [to] Penrin, and at the ende it brekith into 2 armes, the lesse to the College of Glasenith, i. viridis nidus, or wag-mier, at Penrin; the other to S. Gluvias, the paroch church of Penrine therby." The word "Polsethow," has been omitted before "wag-mier," (quagmire), and the words "of arrows" after it.

Further on, Leland expressly states that "one Walter [Brounscombe] Bishop of Excestre, made yn a ~~more~~ callid Glesnith, in the bottom of a park of his at Penrine, a Collegiate chirch, with a provost, xij prebendaries, and other ministers."



## ON THE EARLY ACCEPTATION OF THE NAME OF FALMOUTH.

By HENRY M. JEFFERY, F.R.S., Vice-President.

In early times prior to 1661 the name was used in two senses, (1) to denote the entrance (entrie) between the Shag Rock off St. Antony's point and Pendennis point; (2) in the usual extended form of "Falmouth Haven" to embrace not only the Carrick and King's Roads, now designated the outer and inner Harbour of Falmouth, but the main river Fal, with all its affluents, so far as they are reached by the tide, or are navigable by boats.

Thus Leland writes 1533—1540 in sense (2): "Falemuth ys a havyn very notable and famose. At the hedde of the olde ful se marke of Falemuth is a market-toune cawled Tregoney."

In the (1) primitive sense he writes: "In the mydde way between Falemuth and Dudman is an islet, cawled Grefe." (Greeb?). Accordingly in the extant maps and charts of the 16th and 17th centuries the river Fal and its tributaries are designated Falmouth Haven.

In the Public Record Office there exists a "plot of Famouth Fort," in which the keep is called Pendennis Castle: in this plan, which was drawn by John Norden in 1611, "Famouth" is used in the original sense (1).

So also in the "Weekly Intelligencer," 1646, St. Mawes is the "nethermost fort of Falmouth, which hath the chief command of the harbour." This last writer distinguishes the mouth from the harbour itself.

A valuable map of the river Fal and its affluents was drawn by Baptista Boazio in 1597, of which two copies are preserved in the War Office, and an engraving is published with this number of the Journal (Plate D.) Boazio styles it a map of "Falmouth Baie," using both words in their ancient, and not in their modern, acceptation. Although parts of the outer coast are drawn, reaching Porthscatha to the eastward and to the westward as far

as Mainporth,—Boazio must not be understood to mean Falmouth Bay in its present sense, as limited by Pendennis and the Manacles, but, in an ancient sense of “Baie,” as that arm of the sea, which extends into the land, viz. the Fal with its affluents.

Where the town of Falmouth now stands, Arwenack, Three Farthings' House, and a third house appear alone in Boazio's map. It is elsewhere recorded that Sir Walter Raleigh was entertained by John Killigrew, and his crew at the other sole existing house. In 1613 a village called Smithike was erected by John Killigrew on one or both sides of what is now the Market Strand but then was called Lyme Kill baie; but the name of Falmouth was first given in the Charter of Incorporation in 1661 to the present town.

A clear conception is necessary, that a reader of ancient documents may not be misled by conflicting statements. The contradictory statements of William of Worcester in his Itinerary (1478) have been separately noticed, in my memoir on Emendations of William of Worcester.—(p. 171.)

Thus, in a map, executed about 1500 by Francesco Mauro, and preserved at Venice, *Falamua*, Plemua, Paesto (Padstow), and Artemua (Dartmouth) are described as the principal towns in the West of England—(Lysons' *Magna Brittania*, p. 99.) Again, in Ortelius' Theatre of the World (Amsterdam, 1595) the town of *Falmout* is mentioned.—(Worth).

These mistakes are rightly attributed to foreign geographers, reasoning from false analogies, unless we are to suppose that they mistook the name of the harbour for the names of the towns on its banks, Penryn or Truro, over which harbour one or other of them had jurisdiction.

Thus a third sense, which flows from the second, was given in early times to the word Falmouth, which perplexes the readers of ancient documents.

Very confusing at first sight is the petition of the *Mayor* and *Burgesses* of *Falmouth* in 1627, who prayed to be excused from furnishing ships for the king's service, as they were extremely poor.—*Domestic State Papers*, 1627.

In 1626, the *Mayor of Falmouth* and Captain John Bonython report to the Council, in answer to their letter for fortifying Falmouth. They describe the situation of the town. Its safety depended on the Castles of Pendennis and St. Mawes, the condition of which they strongly represent.—*Calendar of State Papers*, 1626.

The explanation is very simple, when the facts of the case are known. The charter granted by Elizabeth (to Truro) recites that "the Mayor (of Truro) is and has long been reputed to be Mayor of Falmouth."

At the heralds' visitation of Cornwall in 1620, they find also, that the Mayor of Truro hath always been, and still is, Mayor of Falmouth, as by an ancient grant now in the custody of the said Mayor and Burgesses doth appear.

Hals (1685—1736) ascribes this grant to King John of "The royalty over the whole Harbour of Falmouth as far as Carike Road and the Black Rock Island in consideration of twelve pence rent and suits to that Manor Court, which royalty this town enjoyed till the time of King James II, and executed their water processes all over the said harbour for debt and damage; but then, upon the petition of Sir Peter Killigrew, Bart., it was given by him as augmentation of profit to Mr. Quar(a)m, Rector of Falmouth, and his successors for ever."

(In 1709 this right and the jurisdiction over the harbour were contested, and decided in favour of Falmouth town.)

Hence it appears that the State Papers, here quoted from their abstracts, refer to the action of the Mayor of Truro in his capacity as Mayor of Falmouth Haven: it is possible that Capt. John Bonython (of Carclew?) acted for Penryn, which may have been the town endangered, rather than Truro.

If William of Worcester is to be trusted, Penryn exercised in his day (1478) jurisdiction over Falmouth Harbour. "Falmouth havyn pertinet villæ Penryn."

That "pertinet" has the sense "belong to" and not "extend as far as" is clear from another extract from the same writer: "Insula Rascow (Tresco) pertinet abbati Tavystock."

Before the subject is closed, another sense may be noticed, which naturally springs out of the first.

In the *State Papers*, Feb., 1598, we find it reported that the castle of Falmouth was sold to the king of Spain by one Killigrew.

In Nov., 1597, the Spaniards proposed to take and fortify Falmouth: when they were within 26 leagues of Scilly the storm drove them back.—(*Domestic State Papers*).

In both these passages Pendennis Castle is meant, Falmouth fort, as Norden described it.

And in no case did the word Falmouth denote the existing town or pre-existent village, before the Proclamation of 1660 or the Charter of Incorporation which was granted in 1661 at the solicitation of Sir Peter Killigrew.\*

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ADDENDUM.—An early historical reference to Falmouth occurs in the reign of Henry IV. His second queen landed from this haven, and in 1405 the Count de La Marche 'made a petty attack on the poor people near Falmouth.'—(*Pictorial History of England*, Vol. II, B. V. p. 18.)

Mr. H. Fox has noticed in Murray's Guide to North Italy a *Mappe-monde* made by Frate Mauro in 1457, and now lodged in the Doge's Palace at Venice, wherein "Falmut" occurs at the entrance of the harbour. The editor (Mr. H. M. Whitley) has found in the Issue Rolls at the Public Record Office (44 Edw. III, 1369-70), that Falmouth is mentioned in connection with the Duke of Lancaster's passage to Gascony. This is the earliest mention of the Haven, which is known.

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The original jurisdiction of the Mayor of Truro over Falmouth harbour is illustrated by the following reference.

Thos. Lukey, Mayor of Penryn, was examined before Sir Francis Vivian, as to some French prizes which had been brought into Falmouth Haven, in 1622.

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\* His motive is thus stated by his relative, Mr. Martin Lister Killigrew. "From the said Commonwealth, or rather Government, it must be owned very unthinkingly, to equal in figure the rival town of Penryn, he obtained the charter incorporating the village of Smithick by the name of "Falmouth." (Killigrew MS., 1737.)

In his examination he stated that the letter from the Council was brought by the messenger one Sunday night when he was in bed, that he did think the letter directed to the Mayor of Falmouth should have been delivered to the Mayor of Truro, and therefore at first refused to receive it, but the messenger insisting on it, he took it and forwarded it to the Mayor of Truro, who at once took the necessary steps to stay the prizes.—(*State Papers Domestic*, Jas. I, Vol. 130, No. 91.)

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#### PEDIGREE OF THE KILLIGREWS.

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The accompanying portions of the Pedigree of the Killigrews will serve to elucidate the Killigrew and Falmouth MSS., and Mr. Tregellas' historical sketch of the Killigrews (*Cornish Worthies*, Vol. II, pp. 113—197).

They have been extracted, by permission, from the complete pedigrees of the Killigrew and Erisey families, in the *Visitations of Cornwall*, of 1530, 1573, 1620, which have been edited, with additions, by Lieut.-Col. J. L. Vivian.

The names of John Merrill, for whom the Falmouth MS. was written by M. Lister Killigrew, and his descendants for two generations, have been omitted by Col. Vivian, but supplied at the Arwenack Manor Office.

The following extract from Hals is contradicted, both by Col. Vivian and by Capt. Lister Killigrew; and Hals is notoriously untrustworthy.

“John Killygrew, Esq., that married Monke, had issue by  
 “her William Killigrew, Esq., created the 585th Baronet of  
 “England, patent 22nd of December, 12th Charles II, 1660,  
 “with limitation to Peter Killygrew, Esq., son of Sir Peter  
 “Killygrew, aforesaid, Knight. This Sir William Killigrew,

“Bart., by ill conduct wasted his whole paternal estate, which  
“was valued at about 3,000*l* per ann.; and, lastly, sold this  
“manor and barton of Arwynick to his *younger* brother, Sir  
“Peter Killigrew, Knt., aforesaid.”

All the other authorities make John the eldest son and heir,  
and place Dame Jane, his widow, in possession of Arwenack  
after his decease. Sir Peter and Sir William were the 4th and  
6th sons respectively. Hals may have wrongly blamed Sir  
William, a soldier of fortune, for the extravagance of his father,  
a man of evil repute. (*Cornish Worthies*, Vol. II, p. 120.)

KILLIGREW OF ARWENACK.

ARMS:—*Arg. an eagle displayed with two heads, Sa. a bordure of  
the second bezantée.*

Raphe Killigrew, Lord of Killigrew  
in St. Erme, temp. Hen. III.

A quo in the 4th descent

Simon Killigrew—Jane, da. and heir  
of Arwenack, of Robert, lord of  
1 Ric. II. Arwenack Manor.

A quo in the 5th descent.

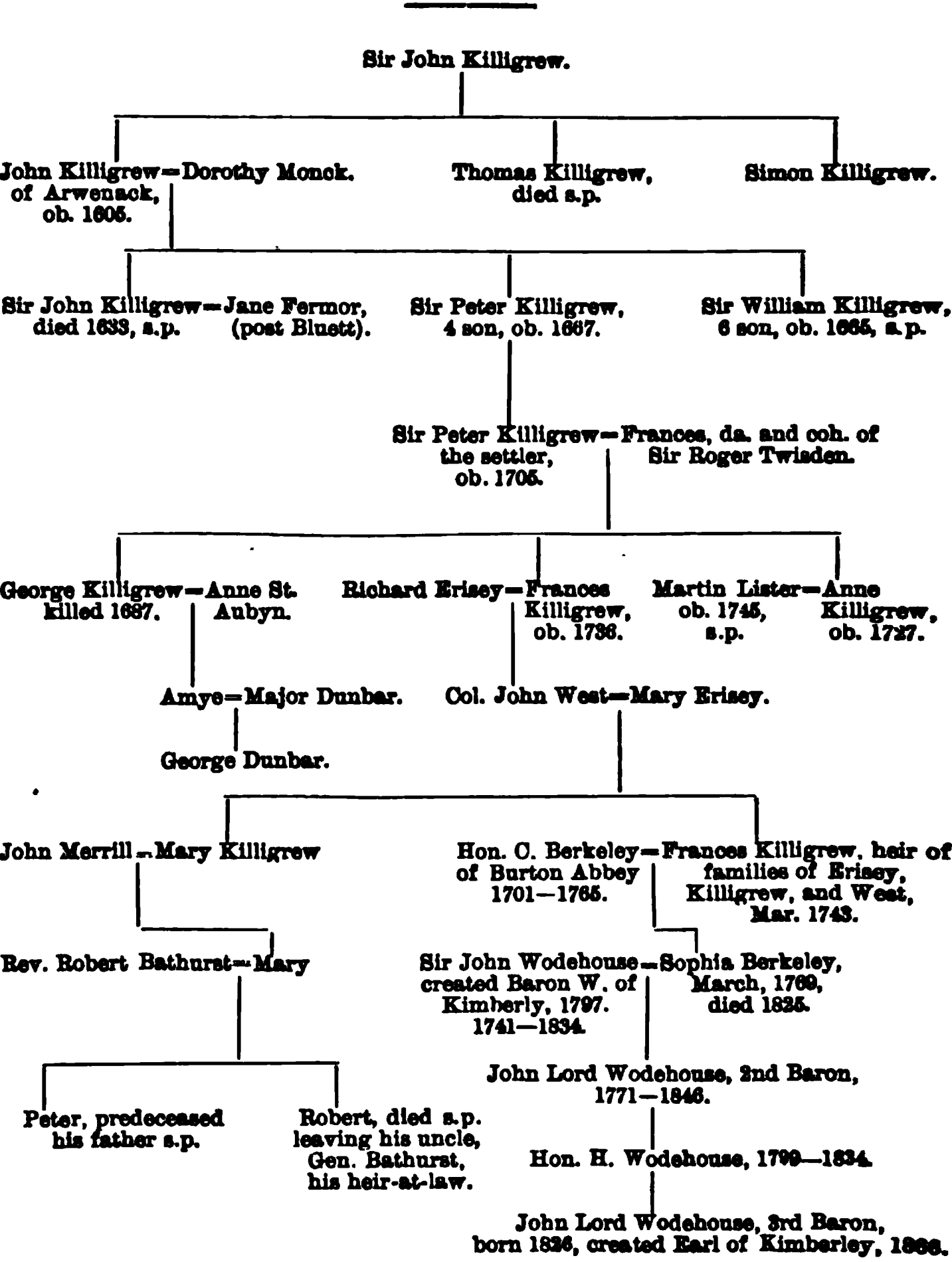
John Killigrew—Elizabeth 2 da. of  
of Arwenack 1st Capt. James Trewennard,  
of Pendennis Castle, of Trewennard  
(ob. 1567.)

Sir John Killigrew,  
of Arwenack,  
son and heir  
Capt. of Pendennis,  
ob. 1594.

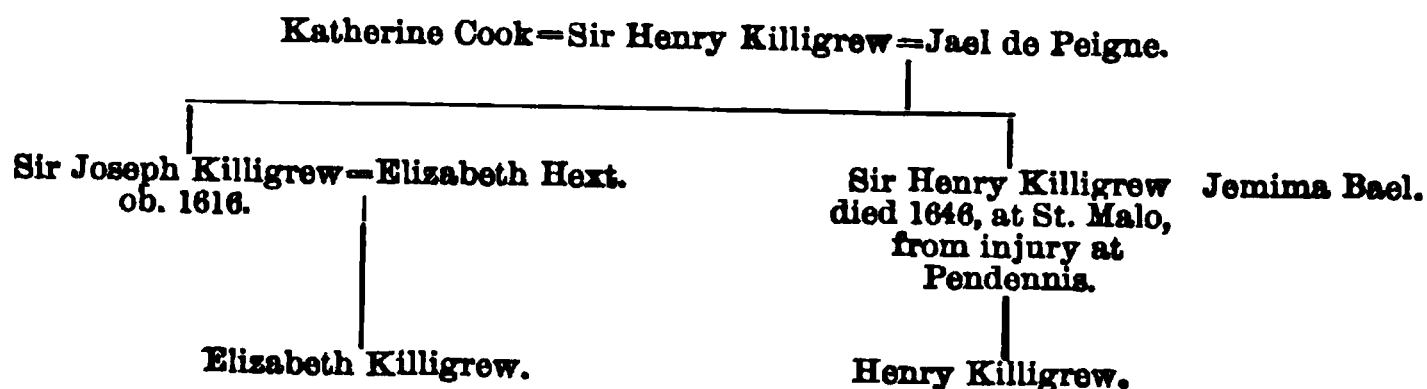
Sir Henry Killigrew,  
Ambassador to France,  
ob. 1602.

Sir William Killigrew,  
Groom of the Privy  
Chamber to James I,  
ob. 1622.

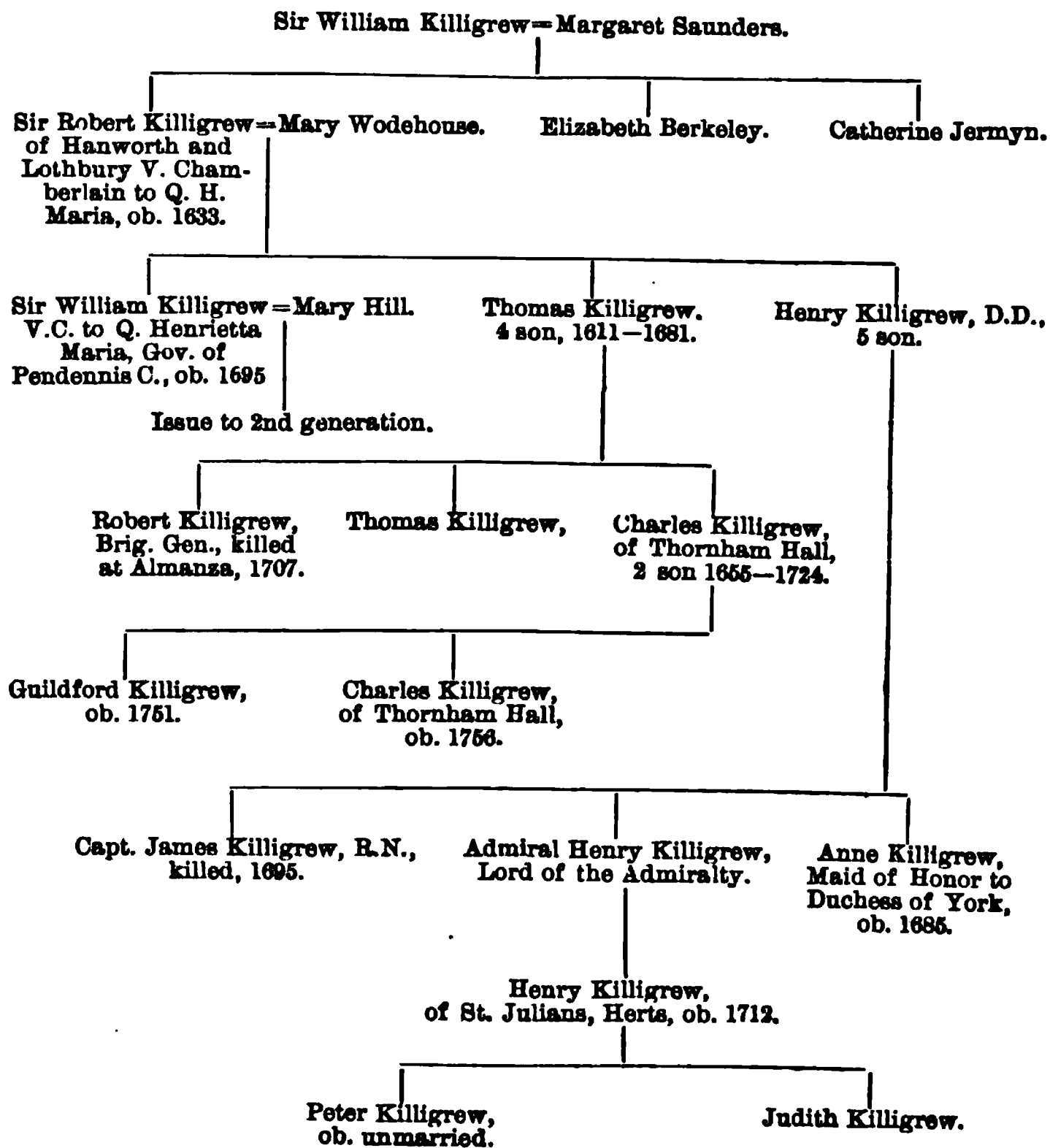
MAIN BRANCH OF THE KILLIGREWS.



SECOND BRANCH OF THE KILLIGREWS.



THIRD BRANCH OF THE KILLIGREWS.





TWO HISTORICAL SKETCHES OF THE KILLIGREW FAMILY OF  
ARWENACK, COMPOSED BY MARTIN LISTER KILLIGREW,  
IN 1737-8, AND KNOWN AS THE KILLIGREW MS. AND  
THE FALMOUTH MS.

EDITED BY H. M. JEFFERY, F.R.S., *Vice-President.*

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Both these MSS. have been published in a mutilated form,—the first by Mr. Worth, in April, 1871 (*Journal of the R.I.C.*, pp. 269—282,) and both by Mr. W. C. Wade, in the *Western Daily Mercury*, in September, 1878, with prefatory remarks and interesting comments.

Mr. Worth entitled his paper—"The family of Killigrew,"—and avowedly omitted from the MS. narrative many pages, which would not interest the general reader. He (Mr. W.) has also prefixed to "this valuable contribution to the historical collections of the county," a sketch of the author, which contains all that is known of the last of the Killigrews in the main branch; to this memoir our readers are referred.\* The phraseology and orthography are reproduced in nearly their pristine form, from the copy before him: the original was not known to exist (Mr. W.)

It will be shewn at the end of this preface that Mr. Worth's title is misleading: it should have been narrowed as "The Arwenack or Main Branch of the Killigrew family."

Mr. Wade claimed for his copies, that they were the original MSS. "The original manuscripts written by a member "of the Killigrew family were the property of the late John

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\* The following notice of the author is given by Hals (*Collections*, 1685—1736) p. 127: "Sir Peter Killigrew had Issue also two daughters, the one married to Richard Erisey, Esq., and another married to Martin Lister, Esq., of Liston, in Staffordshire, a Captain or Lieutenant in Pendenis Castle, under John Earl of Bath; upon whose Issue by her Sir Peter settled much of his Lands, on Condition he should assume the name of Killygrew, and is now in possession of this Lordship."

“Hooton, Esq., of Falmouth, and have recently been put into “my hands by my brother-in-law, Mr. Edward J. Hooton, of “Plymouth, his grandson.” It may be proved that these were not the originals, since a large hiatus occurs in the Killigrew MS. between the events of 1670 and 1685, which is supplied partially by Mr. Worth and completely by the manor-office copy. Moreover, the language and orthography are everywhere modernised in the Plymouth print, and a lengthy document has been condensed. Several pages were lost at the end of the Hooton copies of both MSS. at the time of publication.

The present edition is mainly based on the manor-office copy of the Killigrew MS., and on a transcript of the Falmouth MS. (carelessly taken) in the possession of Mr. W. J. Genn, of Falmouth: the Plymouth text has been partially collated with the other two.

The present Editor has obtained the consent of the Council to complete the publication of the Killigrew MS. in their Journal, and to produce the entire Falmouth MS. They thought it desirable, that these documents should be placed on permanent record in their entirety, in justice to their author, who to some extent appreciated the high distinctions and the great importance gained by this ancient Cornish family in the Tudor and Stuart reigns, and wished to leave behind him “something historical” of the family, the memory of which was so dear to him. Further, since the town of Falmouth was the creation of the Killigrews, notably of Sir John Killigrew \*(1605—1633), Sir Peter Killigrew (1648—1667), Sir Peter Killigrew (1667—1705), these memorials of the relations between the townsmen and the lords of the manor, on which the town was built, constitute the basis of the early history of Falmouth and its antecedent village, Smithick,—and therefore ought to be rendered accessible.

I have stated Mr. Killigrew’s motive in writing the Killigrew MS. He compiled the Falmouth MS. as a narrative of the contentions and (in his judgment) of the encroachments of the townsmen for the guidance of Mr. Merrill, who afterwards married Col. West’s eldest daughter, and representative of the Killigrews in 1737. This last-named narrative presents the

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\* The dates are given of the years of possession.

views and traditions current among the Killigrews themselves, and should be read with a critical eye. Mr. Killigrew, as the steward, and a connection of the family, regarded the growth and prosperity of the town, so far as they conduced to the benefit of the Killigrews. Instances of this bias are subjoined.

The corporation had complained to Mr. Merrill that they had no corporate property to defray the necessary expenses, and alleged that theirs was the single instance of that kind in the kingdom. Mr. Killigrew considers it a sufficient reply, that when Sir Peter had made the members of the Corporation of his own simple honest tenants, as he was empowered to do, he had little reason to apprehend opposition from them, or in his own peculiar language, "his enslaving himself to a body of insolent tenants." Take another illustration,—the Corporation paid the annuity of £3, due to the vicar of Budock, out of the sums yearly levied for the poor rate. This was their obvious course, and yet the author is so prejudiced, that he calls it 'fraudulent.' Again,—by a bye-law, the Corporation extorted an arbitrary fine on all new comers, who commenced business in the town. Mr. M. Killigrew was eager to contest in a court of law this impost, ostensibly in the interest of the sufferers, but, really of the lord of the Manor.

The author of these MSS. seems to have combined two distinct characters: he was an honourable and fearless soldier, as well as a shrewd and methodical steward, who set an old-fashioned and exaggerated value on property with its advantages and rights. As an author, he expresses himself forcibly and in general clearly, but without elegance. We may add that his sentences are involved and unwieldy, and sometimes ungrammatical. His irreligious spirit is evinced in the narrative of the curate he supplied to Mr. Quarme, the rector of Falmouth.

An admirable abstract of the Falmouth MS. was published by R. Thomas, *History of Falmouth* (1828), chap. V, 66—82; the Killigrew MS. was consulted by Drew and Hitchens, in 1815-24, and by Mr. W. H. Tregellas, who has used the information thence derived, in his animated and comprehensive description of all three branches of the Killigrews, "diplomats, warriors, courtiers, and poets."—*Cornish Worthies*, vol. II, pp. 115—195.

John Killigrew, the first captain of Pendennis, had besides other children, three sons, Sir John, Sir Henry, and Sir William, each of whom may be considered to have founded a distinct branch of their family. The author of these memoirs has chiefly written on the first or main branch; to the third ('the younger family') he has shown scant justice. It is strange that Mr. M. L. Killigrew has omitted to mention the second branch, which had attained considerable eminence, and was descended from the famous diplomatist of Elizabeth's reign, the above-named Sir Henry Killigrew. The sketches of Sir Henry\* and his learned wife Katherine, and of his son Sir Henry, fill 17 pages of the *Cornish Worthies*, pp. 137—153. Possibly this branch was extinct in 1737, since the pedigree given by Col. Vivian does not extend beyond the second generation from the first Sir Henry.

Mr. Tregellas, with the natural instinct of an author and artist, has depicted with special care the careers of the Killigrews of the third branch, who have won a place in the national history, as poets, painters, play-wrights, and soldiers. One can understand why Mr. Lister Killigrew passed lightly over Thomas, as 'more famous for his wit than discretion' This famous court-jester, and play-wright† (*Cornish Worthies*, pp. 160—174), master of the revels in King Charles II's days, was too disreputable in his life and writings, and too poor. But he must have heard of Mistress Anne Killigrew, "excellent in the two sister arts of poesy and painting," to whose memory Dryden dedicated (in Johnson's judgment) "the noblest ode that our language has produced," "which flows with a torrent of enthusiasm." Yet our author is silent. He barely alludes to Robert, her cousin, that his monument in Westminster Abbey falsely styled him of Arwenack. We should have expected from a soldier, sympathy and pride in the gallant end of the Brigadier-General, whose heroism at Almanza is commemorated in the National Mausoleum.

In conclusion, we have to thank Mr. Lister Killigrew for these veracious memorials of the past: we wish they had been

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\* See also the brief notice of Sir Henry by Hals, p. 127.

† A well-known *jeu d'esprit* of his is given by Hals, p. 130.

more copious and less open to criticism : but as they stand, they are the main source of the early history of Falmouth, and will be esteemed accordingly.

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The following estimate of the family of Killigrew, which was written by Hals, p. 126, doubtless represents the deliberate sense of their contemporaries :—“ The stock is ancient; and divers of the Branches have grown to great Advancement in Calling and Livelihood by their greater Deserts.—Though I could never understand that any of them ever serv'd their Prince or Country in any publick Capacity, as Parliament-men, Justices of the Peace, or Sheriffs for this County; out of a politick and secret Reserve to themselves, as not thinking it prudent to do other Men's Business at their own proper Cost and Charges, or to be puffed up or pleased with the tickling Conceit of making themselves popular in their Country with any office they did not *get money by*. Wherefore, generally, they were Courtiers, and Favourites of their Princes, and got many Boons thereby of great value.”

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#### I.—COMPLETION OF THE KILLIGREW MS.

(See *Journal of the R.I.C. No. XII, April, 1871, on the Family of Killigrew, by R. N. Worth*).

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#### UNPUBLISHED PORTIONS.

(The text has been re-printed from the printed copy of the Wade MS. ; the corrections inserted in small type, are extracted from a transcript made by Mr. Mitchell, in 1871, from two old books in the Arwenack Manor Office, which have since disappeared.)

In the general it is to be wished that families would make and preserve annals of the various incidents happening to them, as what may be help to their behaviour in the world, and a caution and garde against such misfortunes as they might thereby see befall their ancestors. This family in question in the original and younger house hath been both attended with un-

common vicissitudes, yet without imputation of treason or other capital crime,\* which hath not been a common case in so antient a family.

The very name, together with the distant and out-of-the-way county of their residence, makes it apparent that they were of the most antient of our people. What their arms were before is uncertain, but from y<sup>e</sup> Herald's Office we know that in the time of Richard Duke of Cornwall, brother of Henry III, and King of the Romans, he gave to (<sup>MS.</sup><sub>gave them</sub>) Ralph de Killigrew the spread eagle, with the border of Cornwall,† which undeniably denotes the family to be of consideration, so high back as those antient times ; and until and in the time of Henry VIII, they were still possessed of the manour of Killigrew, in that county, though some time before they had married the daughter in (<sup>MS.—and</sup><sub>heir.</sub>) heir of Arwenack, and had removed their residence thither when Pendennis Castle(<sup>MS. omits</sup><sub>castle</sub>) was built by the said King, (<sup>MS.—King</sup><sub>Henry</sub>) and John Killigrew, Esq., made Captain thereof, and so continued to the time of his death, in the 9th of Elizabeth, and in the year of our Lord, 1567, having rebuilt Arwenack House, the finest and most costly then in the county, as to this time in part appears by the stately hall window (<sup>MS.</sup><sub>windows</sub>) thereof, still standing,‡ and was possessed of one of the largest estates in the county, his lands on (<sup>MS.—in</sup><sub>those</sub>) those parts extending from Arwenack, to Helford passage, and had the propriety of sixteen parish tythes, the whole now in value to the several proprietors £6,000 a year, and must have been a great estate in that gentleman's time.

Sir John Killigrew, Knt., son of the said John Killigrew, Esq., succeeded him in his estate, and by the favour of Queen Elizabeth in the said government of Pendennis, dying governor

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\* John Killigrew in 1588, was a "notorious pirate" (*Cornish Worthies*, p. 121), and Dame Mary Killigrew, his mother, in 1582 committed piracy and probably instigated to murder ; the actual criminals were executed.—(*Jour. Roy. Inst. Cor.*, vol. vii, p. 284). Probably Mr. M. L. Killigrew had never heard of these outrages.

† "Hals took the arms to indicate the descent of the family from the Duke through his concubine, Joan de Valletorta."—*R. N. Worth*. See also *Cornish Worthies*, p. 116, on the different coats of arms borne by the Devonshire and Cornish Killigrews.

‡ See the notice of Arwenack House, as it appears to-day, in this number of the Journal,

thereof 5th March, in the 26th of the said Elizabeth, in whose court having placed his two younger sons, Thomas and Simon, where they made their fortunes, and set up the younger house† in greater prosperity than that of Arwenack, as shall be more (<sup>MS. omits more</sup>) particularly mentioned when I shall have done with the elder house of Arwenack.

[*Worth*, p. 273, par. 2, line 12, between Extent\*\*\*\* and This woman] and as a proof of this wretched woman's flagrant prostitution, the court only compelled him to allow her £20 a year, who being of a family as aforesaid,‡ and bringing a suitable portion, must have been more large, had she not appeared to the court so vitious a woman.

[*Page* 274, line 2, between Jointure \* \* \* and who lived] which was the whole of this heretofore great estate consisting of the houses then in being in Smithick (now Falmouth) of little value, Arwenack House and the demesne lands about it, and the little manour of Mylor,\* the whole upon an inquisition taken in the time of the civil wars did appear, and (<sup>MS. and so was</sup>) was returned not to exceed the yearly value of eighty pounds.

[*Page* 274, line 20, between demise and [Then] unto the said Sir Peter, (<sup>MS. —Peter Killigrew</sup>) and Mary his wife, (<sup>MS. —all and singular</sup>) and singular those the (<sup>MS. —those lands</sup>) lands tenements, parcells of ground meadow and pasture situate lying and being in the west moor of or near Cardiffe, in the county of Glamorgan, some time in the tenure of William Bowdropp, Esq., and late in the tenure or occupation (<sup>MS. omits or occupation</sup>) of William

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† See below a comment on Thomas and Symon Killigrew.

‡ Dame Jane Killigrew was the daughter of Sir George Fermor. The piracy ascribed by Hals to Dame Jane, and after Hals by Mr. Worth (p. 272, note), was really committed by Dame Killigrew (neè Wolverston), her husband's grandmother.—(Mr. H. M. Whitley *Jour. Royal Institution of Cornwall*, Vol. VII, p. 286; see also Mr. Tregellas *Cornish Worthies*, Vol. II, p. 120). After her husband's death Dame Jane found a second husband in Francis Bluett of Trevathan (Trevethan?) and died in 1648. During the occupation by the Bluetts in March, 1646, Arwenack House was burned by the garrison of Pendennis Castle: Bluett was treated as a delinquent and reduced to poverty. (Mr. Whitley, *Journal R.I.C.*, Vol. IX, p. 50.)

\* In the field-map of 1691, preserved at the Manor Office, this estate is drawn.

Thomas, Esq., or of his assignee or assigns, that is to say, one parcell of land cal'd the common moor, one tenement and divers lands thereunto belonging, call'd Adams (<sup>MS.</sup> Adams's) Downs, and (<sup>MS. --- one</sup> other) other parcell of ground, call'd the new grounds, one other parcell of ground, containing about 3 acres, adjoining to the said new ground, (<sup>MS.</sup> grounds) one other parcell of land call'd Barber's Close,\* also Tanners Mead, John Robert's Mead, Wastell's Mead, Gastin's Mead, Tenant's Mead, New Bark, The Furlongs, about 5 acres in James's Ground, Howell's Mead, together with all such parcells of meadow and pasture. lying in Portman's Moor, otherwise Splott Moore, as they or late were fallen into the hands and possession of the said William Earl of Pembroke by the death and decease of the Right Honourable Mary, late Countess Dowager of Pembroke, late mother of the said Earl, together also with all such other parcells of land, meadow, or pasture as the said William Bowdropp thenbefore held (<sup>MS.—W. B. afd. theretofore had held</sup>) and enjoyed, situate, lying and being within the said West Moore at Cardiffe, (<sup>MS.—Moore of Cardiff afd.</sup>) by and under the grant of the said Countess; and they the said William Earl of Pembroke and Philip aforesaid, &c.—amounting to a good £300 a year, and hold myself excusable in my recitals from so extraordinary an act of greatness of mind in the said Earl William, of which Earl Philip succeeding his said brother in the Honour and Estate, proved a wretched copy.

[*Page 275, line 8, after tells, &c.\**] who escaped to Carisbrook, Isle of Wight, and was imprisoned by the Governor of the Castle for and on behalf of the Parliament. (<sup>MS. omits this entire clause.</sup>)

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\* MS.—“One other parcel of meadow or pasture called John Robert's Mead, one other parcel of meadow or pasture called Gastin's Mead, one other parcel of meadow or pasture lying in Tenants' Mead, one other parcel of meadow or pasture called by the names of the New Bark—one other parcel of meadow or Pasture called the Furlongs, one parcel of meadow or pasture lying in James's Ground containing about 5 acres, one parcel of meadow lying in John Howell's Mead.”

(The abridged form of this extract from an indenture, given in the text, proves that Mr. Wade's copy, from which it is printed, was not the original MS. as he believed.—H. M. J.)



[*Page 275, line 17, after the second paragraph.*] This Mary, Sir Peter's wife, (<sup>MS. wife of</sup><sub>Sir Peter</sub>) was of a very antient and honourable family in Essex, and (<sup>MS. omits</sup><sub>and</sub>) had several brothers men of figure, one of which was shot by Sir Thomas Fairfax in cold blood on the surrender of Colchester. She (<sup>MS. omits</sup><sub>she</sub>) had also several sisters one of which married the great Duke of Newcastle, supported exile with him, and both (<sup>MS. omits</sup><sub>both</sub>) lye together under a noble tomb in Westminster Abbey, which family of the Lucas's ended in a female married to the Earl of Kent, father of the present Duke, carrying the whole estate with her. The last Lord Lucas, governor of the Tower, coming from an unfortunate spurious branch in the time of Queen Elizabeth, was created by King Charles II (<sup>MS. the</sup><sub>2nd</sub>) in regard to the many great services of the family to the Crown. I say spurious from an ancedent (<sup>MS.</sup><sub>accident</sub>) as thus:—In the time of the said (<sup>MS. omits</sup><sub>the said</sub>) Queen Elizabeth, the heir of the family, a fine sprightly young gent, fell in love with a maid of (<sup>MS.</sup><sub>Queen</sub>) honour, and had for rival a favourite of the Queen's, whom Mr. Lucas kill'd, and obliged to fly and live in exile to the death of the Queen, but from unthinking heat of blood before his departure consummated without marriage, which produced with its mother's death, an illegitimate son, the ancestor of the said Governor Lord Lucas. The said Mary lived not many years after her marriage to Sir Peter Killigrew, leaving him only one son, the last Sir Peter, and one daughter, who died young; breeding his said son at Oxford, and thence sent him to and kept him in France to the time of the Restoration.

[*Page 278, continue from line 3, Treganeggy \* \* \* \**] I say fortunately from its being obvious that the said purchases delayed a few years must have cost him double the money they did, if to be had on any terms.\*

[*Page 278, line 11, between Peter \*\*\*\* and Besides*] whose father so lately before for his services to the Crown had obtained

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\* These estates were sold, probably in the last century, as it appears from the Manor Office Field-book.

the charter as afs<sup>d</sup> (aforesaid), so that Sir Peter had not only all the interest of the said two towns to defend against, but also by the villany of the said Rogers his own town of Falmouth.

[*Page 278, line 19, between Quay \* \* \* and Y<sup>e</sup>*] then built; in the obtaining which Act of Parliament he still met with the same opposition from the jealousy of the s<sup>d</sup> two towns that Falmouth would rise in trade to their prejudice and in a more especial manner from the said Rogers and his understrappers, the Corporation of Falmouth. The s<sup>d</sup> public Quay perfected ( <sup>B. N. Worth,</sup> projected ) and established \* \* \* \* would have answered all his labour and cost. I may well say—labour—for that is well known in building the said quay and sinking the foundation thereof (tidework) he personally attended the same a-nights, as the tides required, so laborious and indefatigable was he in the undertaking; but God thought fit not to allow him the enjoyment of such his labours, but to afflict him with much greater troubles commencing from about the latter end of the year 1683.

[*Page 279, last line of par. 2, after among his tenants \* \* \**] In particular Sir Peter having an unhappy dispute at law with one Carpenter upon an Extent taking ( <sup>MS.</sup> taken ) out of the Exchequer against the said Carpenter on a debt, for which Sir Peter was bound, whose defence of the said extent pleaded against by Carpenter (supported by ( <sup>MS.—by the</sup> said R. ) Rogers) in point of merit depended upon Sir Peter's producing the Sheriff's warrant for execution, not to be found, was at last fathered upon one Henderson, a miserable rascal, and follower of the bailiffs, who, being pressed in the case, had the assurance to own he had lighted his pipe with the said warrant, and, for which good piece of service, the said Rogers made him chief sergeant and mace-bearer of the Corporation to nose Sir Peter in his own town, which dispute at law carried on under the said Carpenter's name, in the end, after many years' vexation, cost Sir Peter £3,000 or thereabouts.

[*Page 280, last line in par. 1, said Rogers.*"] and so continued for some years. During such Sir Peter's residence at London,

some years of the time was taken up in soliciting at the Treasury for Justice to be done him as to Pendennis Castle(his Inheritance),till then(<sup>MS.—till</sup><sub>when</sub>)held by a long Lease by his Ancestors granted to the Crown on £2,000 fine, and £12 10s. yearly Rent, in which (<sup>Wade—MS. his</sup><sub>pretensions</sub>) pretensions he met with much trouble and opposition from those in post tho' no man in his station as D<sup>r</sup> Lieut. of his county and Justice of the Peace, was more exposedly usefull on the coming in of King William than himself, yet after meerly from his pacific life and being a Steady Member of the Church, he was frowned upon, which with the affliction of the loss of hisson made him careless of his worldly affairs, and in length of time having prevail'd (from his apparent right) upon the Lords of the Treasury to take a 21 years' Lease of him, of the said Pendennis Castle at £200 yearly rent without ffine. In order to his greater retirement from the world he with his said whole ffamily left London and took up his residence at Ludlow, in Shropshire, in the year 1697, where, from his correspondence with the said Mr. Quarme his Steward, he found the man greatly altered, and become a very busy and ungratefull person to so good and generous a patron, from his being so long left without controul Master of the Estate, and in particular from the following circumstances.

The said Rogers, after so long reigning Tyrant of the Corporation of Falmouth to the ruin of Sir Peter's estate, upon all occasions so far as in him lay, but to his own ruin, dying a mere beggar about the year 1693 childless, and leaving a Widow to subsist chiefly by Charity, and with whom the said Mr. Quarme had all along been (<sup>Wade—MS.</sup><sub>lived at</sub>) at enmity, and from thence kept to Sir Peter's interest. But the said Rogers being dead as aforesaid, and Mr. Robert Corker succeeding the said Rogers in his great house, pride,\* and enmity to Sir

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\* 'Corker's great house' and gardens, on the site of Mulberry Square, are drawn in the House-map of Falmouth,—Plate B.

The family of Corker had as good standing as the Killigrews. See note on the Falmouth MS.

Peter, and so reigning for more than 35 years, requires my setting forth the said Corker from his original, a poor boy kept in Charity by John Newman, his Mother's brother, an attorney, who being employed as such by the said Rogers, prevailed on him to take the said Corker apprentice, who proving an acute insinuating young man, whose Master, Rogers, going behind hand in his estate, from whence the said Corker had and took his opportunities of further ruining his Master's affairs, soon after whose death he became a great man, purchased his late Master's great house, turning (<sup>Wade MS.</sup> thrusting with) with little ceremony his late very indulgent Mistress out of it, and to the more easily making himself Master of the Corporation, he insinuated himself into a good understanding with Mr. Quarme (a vain-glorious empty busy man) (<sup>Wade MS.</sup> business man) to the degree of entirely sacrificing Sir Peter's interest and estate to the said Corker's ambitious views, which being so apparent as to make it necessary for Sir Peter (in the beginning of the year 1700) to go down to Falmouth, dismiss the said Mr. Quarme from his Stewardship, and put in his place one\* more trustworthy, and, when done, he returned to his family at Ludlow, where he enjoyed a happy retir'd life without sickness until the 8th January, 1704, when he died suddenly overcome with phlegm, leaving his estate to his Lady for life, and was carried to and buried in the vault at Falmouth with his father and children†

On a brass-plate on Sir Peter Killigrew's coffin, the inscription runs :—

Petrus Killigrew mil. et  
Bur. (Bar.?) filius Petri Killigrew  
Mil. ob. apud Ludlow in  
Com. Salop. 8 Jan. 1704  
Anno ætatis sue (æ ?) 71.

[*Page 281, par. 2, last line, after as unfortunate*"] In justice to the memory of the younger family, who from and in

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\* His son-in-law, the author, Martin Lister Killigrew.

† The Wade MS. ends here, with these words, evidently suppositious : "..... until the 8th of Jan., 1704, when he expired, and with him ended the male line of his ancient family." Another argument is thus furnished against the claim that the Wade MS. is original.

the time of Henry the 8th down to the time of Charles the 1st made great figures in the family and more especially Thomas and Symon, sons of the aforementioned Sir John Killigrew, 2nd Governor of Pendennis Castle in the reign of Queen Elizabeth, were in great esteem with her Majesty, and as honorably employed in sundry embassies abroad, and other employments and acquired a great estate all.\* Lothbury in the City was their town House, Kinton Park near Hampton Court their country seat; the manor of Kerton, in Devon was theirs, with several lands in the east part of Cornwall, as also a large estate in Lincolnshire. Sir Robert Killigrew, of said Lothbury House and Kinton Park, in the time of James the 1st and Charles the 1st was at the head of this second Branch, Vice-Chamberlain to King Charles the first's Queen, who left such his great possessions to his eldest son Sir Wm. Killigrew, several younger sons making great figures, in the world, and four fine daughters, &c.

[Page 282, line 19, after Kirby was y<sup>e</sup> name of one of them.]

The said Sir Robert of Lothbury House had several other sons besides the said Dr. Killigrew. Sir William, his eldest son, Vice-Chamberlain to King Charles the 2nd's Queen Catherine, who inherited a great estate from his said father Sir Robert, tho' something impaired, lived to 86 years of age, and had £30,000 with 2 wives, yet died a beggar and chiefly supported by the said Dr. Killigrew his brother.† Sir William had a son, Sir Robert, who had 3 sons all dead in my time. The said Sir Robert of Lothbury House had a 2nd son called Thomas, more famous for his wit than discretion, who had 3 sons, Henry by his 1st wife, Charles and Robert‡ by his 2nd

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\* What is recorded of Thomas and Symon Killigrew may be read in *Cornish Worthies*, Vol. II, p. 123: Their descendants are not known. Mr. M. L. K. appears to connect (if not to confuse) them and their property with the third branch.

† Sir William was first conjointly with his father, and subsequently sole, Governor of Pendennis Castle.

‡ Brigadier Gen. Robert Killigrew was killed in the *melee* at Almanza, 1707—*Cornish Worthies*, pp. 174, 177.

said Robert falsely styled upon his monument in Westminster Abbey of Arwenack. There is now remaining of this younger House only one Grandson of the last mentioned Henry, and 2 sons† of the said Charles, to whom I am a stranger or desire to be thought so, and not one penny of estate from amongst them all, but about £500 a year, which came by the said Charles's wife in Suffolk.

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## II.—COPY OF THE FALMOUTH MANUSCRIPT, (A.D. 1738).

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### MINUTES FOR A HISTORY OF THE CORPORATION OF FALMOUTH. To JOHN MERRILL, Esq.

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(The text has been reprinted from the imperfect copy of the Wade MS., as printed in the *Western Daily Mercury*, November 21, 1878; the corrections (in small type) and residue of the text have been added from Mr. Genn's transcript. Many words are open to doubt, from the ignorance and carelessness of both copyists. Mr. Killigrew's own slovenly and ungrammatical composition makes the task of emendation unreliable).

Sir,—In respect to the memory of the family of Arwenack (*the Killigrews*), as well as in regard to you, invested with part of y<sup>e</sup> estate, I hold myself obliged to lay the following before you, and pray the same may (<sup>MS. omits</sup><sub>may.</sub>) be taken as a further answer to yours of the 11th of July past, as I promised you might expect from me; and indeed it was the being obliged to make you such further answer, as puts me upon writing so largely as the subject requires.

In your said letter you say—

“That the Corporation dining with you, they attack'd you very warmly upon ye point of their having no revenue, alledging it to be the single instance of that kind [MS. ye kind] in the whole kingdom; and that they were oblig'd to defray not only [MS. omits 'not only'] all the expences incident to the body, and all the treats and entertainments upon rejoycing days, chusing mayors, &c., out of their own pockets, but were also oblig'd to pay a modus in their Corporate capacity, tho' every one of them paid his own tythe in full besides, which was a very great hardship; so desir'd a grant of the market to enable them to bear it; and further the Church-yard is now so full, that they can scarce bury a corps without moving another, praying hard to have a spot of waste ground given them, &c.”

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† Charles (ob. 1756) of Thornham Hall, Suffolk, (his mother's property) and Guildford, Lieut. of Dragoons, (ob. 1751.)

And to make you anything of a regular answer, I see a necessity of attempting something towards a history of this Corporation, from the procuring the Charter downe to this time 77 years, which must consist chiefly of gross facts, I being capable of little more; nor should I attempt so much, were not my personal character much at stake upon the question; and thank you for giving me this opportunity of supporting it, however laborious in these, my very late days (*Born* A.D. 1666). As thus,—

\* In the year 1648, Sir Peter Killigrew the first, coming into the estate, was (? *not*) pleased with the remaining pittance of inheritance, reduced from six thousands (<sup>MS. £6000</sup><sub>pounds</sub>) a year to eighty pounds a year, as appeared by inquisition, taken but a few years before, upon Parliamentary sequestration, and set about cherishing of it, and soon after the Restoration of Charles the Second, being of interest for greater matters, unadvisedly moved for, and obtained this Charter; expressly and at large mention'd to be granted solely and meerly for his services to the said King, and his father, as most amply appears by the said Charter For him to name a body of men to compose the said Corporation, such as he should judge proper; and from making (<sup>MS. in</sup><sub>making</sub>) them all of his own simple honest tenants, he had little reason to apprehend from thence his enslaving himself to a body of insolent tenants, as soon after was the case.

Mr. Bryan Rogers, coming into the great house (Corke's) by marrying Ambrose Jening's daughter, (<sup>MS.</sup><sub>Jennings's</sub>) who had built it, soon put himself at the head of, and made himself master of, the

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\* Note.—The picture of Sir John Killigrew, of Queen Elizabeth's time, who made the first breach in ye Arwenack estate, then very considerable, leaving it in a very shattered condition to his son, Sir John Killigrew, of King James and Charles the First's time, very good but unfortunate man in his marrying a very wicked woman, who was ruined in a tedious prosecution of a divorce from her, which he obtained, and dying without issue, left the estate to his next brother Sir Peter Killigrew the first, whose son Sir Peter the second raised it again, but in a very small degree to what it had been.

The story of the above first Sir John, his being saved from drowning, as described in ye picture, we have but from tradition, which also says he married the woman, but is silent as to who she was; but his dress shows he was a person valuing himself upon his clothes. (Note taken from Wade MS).

said Corporation, and so continued to his death, in 1693, thirty years. From a thousand flagrant instances of pride and insolence, as bragging upon all occasions that he should never scruple to spend (<sup>MS.—not mind  
spending</sup>) £100 to make Sir Peter, the son, spend £20, and would make Sir Peter sensible he could afford to do it. I say—insolent—from a particular instance which I had from Sir Peter's own mouth, which was, that Sir Peter being among them at a town meeting, and Sir Peter uttering some unguarded expression, Mr. Rogers privately proposed to his brethren the laying Sir Peter by the heels (in the stocks), as Sir Peter had it afterwards from the mouth of one of them.

About the year 1672, one Vermuden,\* an engineer, being in the country, and observing how much water was wanting at the public Key, before the water house there (<sup>MS.—omits  
there</sup>) was built, or any water coming to the place,—he, projecting from his levelling the ground to lay down the Manour Mills, bring the water (<sup>MS.—that  
water</sup>) to the Key, and thereby erect mills, and mill houses, and mill pool, which was done and perfected at the expense of upwards of £700—greatly benefitting all the lands, through which the said water passed; as may, in some fields, still be seen, the old trenches carrying the same, the mill pool now a stone quarry, and the old mill houses still to be seen. But Mr. Rogers (<sup>MS.—this  
Rogers</sup>) could not sit easy under so great an improvement being made on Sir Peter's estate. He soon found out (as envy and malice are two (<sup>MS.</sup><sub>to</sub>) quick sights), that in bringing the said water to the Key, unknown to Sir Peter (or probably (? *not*) minded by any other) that the said water passed through any other lord's land; but upon examination it appeared that, in levelling the said water to the Key, it had been diverted for about 30 yards out of, and from, its antient course, in the unminded corner of a field, which John Chapman held of Sir Vyal Vyvyan, part of a tenement called Monglar, (<sup>MS.</sup><sub>Monglar</sub>) as the same appears to this day to run. Mr. Rogers, by his attorney, Jno. Newman, gave notice to Sir Vyal Vyvyan of this great diversion of 30 yards of watercourse, upon which he

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\* Sir Cornelius Vermuyden came to England to stop Dagenham Breach on the Thames. This celebrated Dutch engineer first drained the fens of Lincolnshire, and was in high favour with Charles I, by whom he was knighted in 1629, it is supposed he went abroad about 1666 and died shortly afterwards; it is probable he is the Vermuden referred to, as the date of his leaving England is uncertain.



sent for the said tenant, Chapman, shewing him that (<sup>MS.—omits  
that</sup>) he had no power to suffer Sir Peter so to divert the said water, which would amount to forfeiting his tenement, and that he, the said (<sup>MS.—omits 'the said,'  
to ... 'he, the said'</sup>) Chapman, must joyn with Sir Vyal to compel Sir Peter to restore the said water to its antient course. But the said Chapman, holding by lease for 3 lives his then dwelling-house in the town of Falmouth, and of considerable value, being at a nonplus between his two landlords, he had recourse to the said Newman for his advice and his government; who told him to go to Draper, the steward, and get a reversionary lease of 3 lives more from Sir Peter, which he might have for a trifling (<sup>MS.—Sum  
or Fine</sup>) ffine, as still it (<sup>MS.—omits  
it</sup>) appears by the survey book to have been; stewards, generally speaking, so farr as they are trusted, never scrupleing to betray their masters interest for the sake of making a lease; which done, he boldly joined Sir Vyal his landlord against Sir Peter; so that, unless Sir Peter would submit to become Sir Vyal's tenant at an exorbitant ffine, for the said 30 yards of watercourse, and as extravagant a yearly rent, both running higher (<sup>MS.—more  
than</sup>) than ever was made of the said whole tenement Mongler; which usage from a neighbouring gentleman was so resented by Sir Peter, that he chose to suffer the loss or new (<sup>MS.—of the  
new</sup>) gained water to the Key, and all his cost in building the said mills, millpool, and mill-house, to his damage, as aforesaid, of more than £700.\* So industrious was the said Mr. Rogers (<sup>MS.—said  
Rogers</sup>) on all occasions to injure Sir Peter, aiming at nothing less than the ruin of the family, for his being the more extensively and firmly lord of the place.

Further, a little more essentially to the purpose,—in or about the year 1687, Sir Peter became bound with and for one Carpenter in £200 to the Crown for dutys (<sup>MS.—  
duties</sup>) of tobacco who, proving a bankrupt, Sir Peter procured an Extent†

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\* There is no evidence that the waterhouse at the town quay was originally supplied by Vermuyden from the rivulet of Kergilliack. At present the supply is brought from Tubb's Well below the Wood Lane;—the reservoir adjoins Grove Hill. Probably Sir Peter Killigrew, when he was baffled by Rogers, diverted the water-course from Tubb's Well to Arwenack House to supply the Shipping at the Quay.—See Thomas' *History of Falmouth*, p. 70.

Mill-house Row, which is beside the Friends' Meeting House, probably indicates the situation of Vermuyden's mills, mill-houses and pool.

† A writ of Execution.

against him, which being controverted by the said Rogers underhand, in the said Carpenter's name, and Sir Peter pleading execution being taken by the sherriff of Carpenter's (<sup>MS.—sd.</sup><sub>Carpenter's</sub>) goods, the sherriff's warrant was called for; when, upon examination, the custody of the warrant (<sup>MS.—sd.</sup><sub>Warrant</sub>) was fixed upon one Henderson, a miserable bailiff's follower, who answered, that he had lit his pipe with it, as of no signification. And upon the merit of that piece of service, soon after Mr. Rogers (<sup>MS.—Rogers</sup><sub>soon after</sub>) made him town sergeant (<sup>MS.—</sup><sub>Serjeant</sub>) and mace bearer, to nose Sir Peter and his interest, as he did to the day of the said Henderson's death. And so far, Mr. Rogers (<sup>MS.—</sup><sub>Rogers</sub>) was right in his attachment to Sir Peter's ruin, that at the end of many years' trouble and vexation, Sir Peter found himself about £3,000 the worse for this contest; soon after which the said Rogers, in, or about the year 1692, dying, proved to the world, that he had got nothing by his so many years nosing and trying by all means coming in his way to injure Sir Peter; for that from making the most opulent figure of any merchant in the West of England, he died next to a beggar, his son-in-law, Mr. Hearle, with the rest of his executors, renouncing his will, his wife turned out of her great house, and died in a poor condition.

Mr. Quarme's story properly comes in here, as having a large share in this history of the Corporation; a man of a quick and sprightly genius, was remarkably grateful in all his behaviour to Sir Peter for his having given him the living, and to the death of the said Mr. Rogers, (<sup>MS.—ye sd.</sup><sub>Rogers</sub>) stuck fast and close to Sir Peter's interest against the said Mr. Rogers and his Corporation. But soon after my marriage in 1690, Sir Peter, removing his residence to London, left the management of his estate to the said Mr. Quarme, who continued vigilant and faithful to him therein, until the death of the said Mr. Rogers, who was soon succeeded in the great house by Mr. Corker, then late apprentice to the said Rogers, whose story may not be improper to take, from his beginning, he making an uncommon figure in life.\* This Corker's mother was sister to John Newman,

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\* Robert Corker, who died in 1731, was descended from an ancient family, which went into Ireland from Huntwick in Yorkshire, and originally held lands in Lincolnshire.

an attorney, and married a seafaring ship doctor coming into the harbour by chance, by whom she had this Robert Corker her eldest son, with other children, all left upon the said Newman's hands to keep; and from thence, being in the said Rogers' business as an attorney, prevailed upon Rogers (<sup>MS.—on</sup><sub>ed. Rogers</sub>) to take the said Corker apprentice, gratis; who proving a lad of insinuating worldly parts, and his master then going behind-hand in the world, the said Corker soon saw he should have opportunity of beginning a fortune upon his master's (<sup>MS.—ed.</sup><sub>master's</sub>) ruin, and make (<sup>MS.—</sup><sub>made</sub>) it good; for that upon his master's (<sup>MS.—ed.</sup><sub>Master's</sub>) death he appeared from nothing in a (? *good*) condition, (<sup>MS.—in</sup><sub>condition</sub>) and did purchase his master's great house and goods, turning out the widow, who had been very indulgent to him, to shift in a poor condition. His next step was also to succeed his master at the head of the Corporation, which he effectually did, by making use of Rogers's (<sup>MS.—said</sup><sub>Rogers's</sub>) tools of Alderman left in posts. His next step was to make Edward Pearce also his tool, on whose subject I am obliged to go back to 1687, when in defiance of the great lord of the town (Mr. Rogers), under Sir Peter's protection, the said Pearce took a lease of the old houses and waste ground thereunto adjoyning, and built the house (now the King's Arms), wherein he kept a tavern, being a dareing enterprising man, and carried on his business to success; which improvement of Sir Peter's estate being offensive to Mr. Rogers, by himself and instruments he raised perpetual vexation and troubles (<sup>MS.—</sup><sub>trouble</sub>) to the said Pearce, against whome the said Rogers procured one of his tools to swear treasonable words, and carried with violence against him, to the degree as did oblige Sir Peter to an expensive London journey, to put a stop to the prosecution. But Rogers being dead, and Corker succeeding him as aforesaid, and Sir Peter gone off from his estate to live in London, Corker soon convinced the said Pearce of its being his interest to joyn him in the support of the Corporation

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The Estate of Connelstown Co. West Meath, was inherited by Robert Corker, and is still held by his descendants in Falmouth.

A mural monument with a Latin inscription was erected in Falmouth Church to Thomas Corker, a naval officer, who died in 1700. He may have been the father of Robert. The family name is stated to have been originally *Cœur-cœur*. (See note on 'Corker's House' on Killigrew M.S.)

against Sir Peter, as he did strenuously to the day of his death, not only to the bad example of others, (<sup>MS.—to</sup><sub>others</sub>) but to give me many impediments in the improving (<sup>MS.</sup><sub>improvement</sub>) and management of the estate. And in like manner the said Corker insinuated himself so into Mr. Quarne, (<sup>MS.—to</sup><sub>Mr. Q.</sub>) who though steward to the estate and living in Arwenack House in the year 1697, I had but too much reason to suspect his sacrafising (<sup>MS.—</sup><sub>sacrificing</sub>) Sir Peter's estate to the said Corker's measures; and in some time after detected him therein to a flagrant degree, (<sup>MS.—amount</sup><sub>or degree</sub>) and to Sir Peter's damage of some thousands of pounds, and which, in a particular manner, appears by the survey book, his leasing at shamfully low ffines from 1690 to 1700, so long was he steward.

Nor would Mr. Corker for more than 30 years that he was at the head of this Corporation, suffer any man to come into it who was not his own depending creature; and in his latter days set up a rule that none should be admitted into the body who were tenants to the estate, and upon that foot was brought in Messrs. Webber, Steel, Price, and Capt. Upton. The last-named (<sup>MS.—Capt. Upton</sup><sub>turned out of</sub>) was turned out of the Corporation, on his taking Arwenack House; and some years after, we disagreeing about Rent, he quitted it in a heat, upon the merit whereof he was made Mayor, as a man to be depended on against me.

The case of Mr. Tilliard was a flagrant instance of their virulent prejudice to me. The story, however tedious to you to read, must still be more so to me to write it. The thing is thus: from the time Mr. Quarne was dismissed from his stewardship, and I in his place, by his joyning with and egging on Mr. Corker and his dependants in the Corporation, he gave me much trouble and vexation in the due execution of the trust reposed in me; particularly in his insisting on his right to sixteenpence in the pound upon houses (<sup>MS.—on</sup><sub>houses</sub>) by rate made by the Mayor and Alderman, not within their limitts or jurisdiction,\* as had been the practice (unknown to Sir Peter) whilst he was steward; which, when he found I had exploded and put a stop to, in the pulpit, to my face, I heard him say that men ought to be carefull how they pushed another too farr, for that it was in the power of every single man of spirit to put him to death, without

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\* Situated in the parish, and not in the town of Falmouth. Thomas, p. 73, quotes a memorandum from the Church Register in confirmation, (1700).

making any the least mention of the crime of such a murder ; but he seeing, that I could not be pushed from the interest of the estate, appeared to grow tired, and sent old Mr. Dennis Russel to me with proposals of peace, and upon which he would sit quiet ; I answer'd that if he would himself compose articles, he might be assured I should come into them, so farr as they were reasonable, which ended with my signing, with very little amendments, in hopes of peace, and of which agreement he took his advantages. But to his dying day he continued the same man. In order to his retiring to his estate in the country, and leaving me at quiet, as he pretended (but never did), amongst other particulars, I obliged myself to provide him a curate, at £30 a year salary, but which not being done, I remember it was about the time of my yearly going down to Falmouth, that he reminded me of such my obligation by letter. Soon after which I met with a younge parson in the street, whom I stop't, asking him if he was in business, who answering in the negative, I further questioning him as to his being in priests orders, and his testimonials, he answer'd the first in the affirmative, and that he could have satisfactory testimonials from Oxford. This was the Mr. Tilliard afore-mention'd. I desired him to come to me the next morning, so we parted. And coming accordingly, and finding him to be a natural genius, and of elocution,—it was the beginning of May, that I told him of my setting out the next day for Falmouth,—I could say nothing more to him for the present, but that if he would provide himself with such testimonials to my Lady Killigrew's liking, and bring me a letter from her, he should be curate at Falmouth at £30 a year salary, and so dismissed him, acquainting Mr. Quarme with what I had done, towards complying with such my obligation, and who with reason dayly expected his coming ; but not doing so, in about a month's time I desired my Lady Killigrew to let me know if he had been with her, who answer'd, that she had neither heard nor seen anything of him since I went ; and, waiting in expectation of him another month, I gave over the thoughts of him, as if I had never seen him. Nor then in the beginning of August did I give any attention to a foolish story brought me of a strolling parson's lying dead drunk in the streets of Penryn. The roguish boys had pull'd off and carried away his breeches ; but the third day I was surprised with the

personal appearance of Mr. Tilliard at Arwenack, nor did I then suppose him the man in question, until upon my asking him for a letter from my Lady Killigrew, and his testimonials, and his answering, that being obliged to go to Oxford for testimonials, on which being so long detain'd, he thought it best to make his way directly to Falmouth, and not go so farr back as London to my Lady Killigrew for her letter, and as to his testimonials he had unfortunately lost them by the way. I replied, "Surely you are not the man that lost his breeches at Penryn;" when he fell upon his knees, crying most bitterly, that he was utterly undone, if I did not take compassion on him, protesting that he had made the journey on foot, and had been supported in it by charity, and so must return, but whither he knew not &c. I gave him a guinea, desiring him to think what he had to do, as none of my concern; but at his going away, his behaviour had tenderised me, and, perhaps influenced by a little roguery, I took him back into the room, shut the door, and open'd to him the circumstances I was in, not only with the parson of the parish, but with the leading men of the town, so that I had not the least power to excuse or protect him from his late misbehaviour, and with deep sighs was going from me. I said to him, "Mr. Tilliard, you are of sufficient parts to comprehend and put in practice the instructions I shall give you, and flattering myself you may succeed beyond what you ought to suppose. Your behaviour thus: go to the Falmouth Arms, Mr. Edward Pearce (<sup>MS.</sup><sub>Pearce's</sub>) (aforemention'd), master (<sup>MS.—aforesaid</sup><sub>master</sub>) of the house (now the King's Arms), there is (<sup>MS.</sup><sub>in</sub>) your refreshment to the said Pearce and all who will hear you, take occasion to set forth (with your best capacity) the barbarous usage (<sup>MS.</sup><sub>treatment</sub>) you have met with at my hands, make your story good against me without limitation, sparing no agravating circumstances you can think of, even up to hard names." Which so surprised the young (<sup>MS.</sup><sub>poor</sub>) man, that I was obliged to repeat my said instructions, saying that tho' he could not comprehend them he would soon be sensible of their good effect. Upon which, being satisfied of my being in earnest, he went from me with courage, and acted his part so well, that the thing took beyond my expectation—a strife among the people, who should have the hearing of the story, so well adapted (<sup>MS.—he</sup><sub>adapted</sub>) it to their liking. The next Sunday he preach'd, and that at me to my face without

sparing, and took so with Mr. Quarme, that he declared him his curate, saying he would maintain him as such in opposition of any other I should present, and that for once he would make me as good as my word (by giving the curacy to Tilliard) (<sup>MS. omits the</sup><sub>last six words</sub>). I said (<sup>MS.</sup><sub>1 say</sub>)—succeeded beyond my expectation, for that an extra contribution of £30 a year was rais'd for, and regularly paid him, for 3 or 4 years, so long as he continued amongst them. This long story, however, now deny'd by the (<sup>MS.</sup><sub>these</sub>) lords (Corporation) (<sup>MS. omits</sup><sub>Corporation</sub>) was so notorious, that I am sure there are several in the town still living who must remember it.

At my coming into the estate I expostulated with the lords on their neglect of the people's good Government and prosperity, and instanc'd several hardships the tenants labour'd under, but soon was made sensible, that the chief and only point in view was the (<sup>MS. omits</sup><sub>the</sub>) depressing Sir Peter's tenants and his interest in the place, for the support of their grandeur, in which I ever observ'd them to be alert and vigilant; but, in any other respect for the good government of the people in general, none of the magistrates were at leasure to attend.

In the height of their grandeur they determined upon Organs in the church, and that in despite of my teeth. I urged the charge of an organist, &c., but to no purpose, more then the forwarding the project by my opposition. However, when I found them aiming at supporting the said charge (<sup>MS.</sup><sub>organs</sub>) out of the poor's rates, by application to the bishop I got a stop put to that intended hardship upon the tenants. (<sup>MS. adds: wch instance I urge to show how ready they are</sup><sub>at i(n)venting and putting hardships upon the Tenants.</sub>)

Their management of money constantly rais'd upon our tenants, without control or account, under the name of Poor's Rates, deserves your (<sup>MS. omits</sup><sub>your</sub>) observation, as thus:—Notwithstanding the general law and usage of the Kingdom is that every parish appoint their own overseers, who collect and account with the parish, Justices of the Peace never interfering but upon complaint made to them by way of appeal,—yet these lords yearly appoint nominal overseers (meerly nominal) (<sup>MS. meerly</sup><sub>so</sub>) over whome they have an absolute power, give them a rate ready made out, without any but themselves appriz'd of it, with orders to collect and carry the money to the Town Olerke, who yearly



charges £5 a year or more for keeping the accounts for the lords, not for the town's people to see and inspect, as is the just practice of all other parishes; and my curiosity being great, and never being able to *git* (<sup>MS.</sup><sub>get</sub>) a sight of such their book of accounts, opportunity offering, I got possession of such their book, (<sup>MS. omits from 'opportunity' to 'took'</sup>) which could not be known to be such by anything of its contents but the title, which book is safely lodged in Arwenack House, with Mr. Hall, for your perusal; and wherein you will see one of the lords, making himself overseer of the poor, charges no less then £27 in one article for sundry and promiscuous expences, so that nothing appears to support such charge, you and your tenants rated to the poor, what these lords please, and none to appeal to but themselves, who made the rate; and, giving no account of the money collected, they have your estate at their discretion to raise money upon it as they please; which grievance I have struggled with for many years, at very great expence, in hopes of redress, from the County Sessions; but as the Charter imports an exclusive clause to the County Justices meddling, and they not entering into the salvo (<sup>MS—Salvo</sup><sub>I proviso</sub>) for Sir Peter's rights at the close of the Charter, I could have no relief from the County Sessions, and was upon carrying the merits into the King's Bench, when my sister dyed.

When Mr. Corker had debauch'd Mr. Quarme's fidelity from Sir Peter's interest, he perswaded Sir Peter to come into and sign (<sup>MS. and</sup><sub>signing to</sub>) a body of By Laws, for the better government of the town; and being to be sign'd by the judges, Sir Peter attended my Lord Chief Justice Holt thereon, who declar'd to the following effect. That the *King's power* did not extend to the granting by Charter to ye infringing any man's right, much less could any Corporation under pretence of By Laws do it, and that as to his and the rest of Judges signing such By Laws, gives them not any real weight to the infringement of any man's right, and that Sir Peter need not apprehend any danger to his estate from such his signing.

One of these By Laws importing, that all new comers into the Corporation should pay a ffine to the Mayor for Licence to open shop windows, they forthwith put it in practice, with severity, (<sup>MS. with</sup><sub>security</sub>) and continued it many years (as they still do) without my observing it; until I heard of a crying instance in



the case of a poor man, whose name is out of my head, a very poor man, shoemaker I think he was, who had a ffine of £4 set upon him, and from his poverty not readily paid; he was sued for it, and after being run up to 30 shillings cost, he was (in my absence) advised of his being without Remidy, and must pay it, which with great difficulty, and to the apparent lessening of his little stock, he complied with; and which, coming to my ears, I must own I could not readily give credit to so arbitrary a violation of our Laws, and sent for the man, to be more certainly inform'd as to the fact, who declaring the truth thereof, I asked him what he had to show for his money, who answer'd—Mr. Mayor's receipt for the ffine, and the Town Clerk's receipt for the costs, which, when he had brought me, I told him that he might count upon having his money refunded him by me (<sup>MS.—back,</sup>  
<sup>repaid by me</sup>) upon his signing a power to my (<sup>MS.—a</sup>  
<sup>power of</sup>) attorney to sue the Mayor and Town Clerke in his name, and giving me bond for his not releasing such actions as should be brought in his name; at which his spirits seem'd to be rais'd, and in joy went home to tell his wife the good news, from whence I counted myself secure of exploding his By Laws (<sup>MS.—this</sup>  
<sup>By Law</sup>). The said power and bond being ready, I sent for the man to sign and execute, who not so readily coming as I had reason to expect, repeated the message, when he came with a sorrowful (<sup>MS.—very</sup>  
<sup>sorrowful</sup>) countenance, saying, that as with hard struggling in his business he had got a settlement, and not without hopes of supporting his family; but should he sign or do (<sup>MS. omits</sup>  
<sup>'or do'</sup>) anything whereby ye mayor might come to damage, he and his wife were assur'd that they should not be suffer'd to live in quiet in the town, but ruin'd if they persisted to stop (<sup>MS.</sup>  
<sup>stay</sup>) in it. And knowing the poor man had but too much reason on his side, and for fear of hurting him, I held myself obliged to drop the question; which I think doth more than sufficiently demonstrate the arbitrariness of this body of Lord sin possession (<sup>MS.—</sup>  
<sup>projection</sup>) of your estate (<sup>MS.—Sir Peter's</sup>  
<sup>estate</sup>) without controul,—and yet but one instance of many.\* The chief study and delight has ever been to charge and oppress your tenants (<sup>MS.—press</sup>  
<sup>the tenants</sup>).

The instances of their having an evil and envious eye to the prosperity of the place are numerous,—sitting hard upon all

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\* The selfish motives, the exactions and encroachments are made clear by Thomas, pp., 68, 70. Thomas was the surveyor to the Arwenack Manor.

improving tenants, by Trade and Building. George (<sup>MS.</sup> Joseph) Wickham, in the year 1700, was the only man who I could (<sup>MS. omits who</sup>) observe do anything for the benefit of the place. It was he who built the two houses by the Church, the front house thereof (<sup>MS.—whereon John</sup>) Jno. Russell, or Emmett, now lives in, and probably would have done much more for the good of the town, but was suddenly taken off before his said building (<sup>MS.</sup> dwelling) was finished. He hinted to me, that he was ridiculed for so l(a)ying out of his money, and the respect he showed to me.

Mr. William James, a second instance of the like behaviour as Wickham, and to a much greater degree a benefactor to the estate, not only in building but in trade at the Key, and honestly paying the poor people of the town he employed,—a man grown to be of considerable substance and great credit from his fare dealings,—yet to his dying day was peak'd (<sup>MS. picked</sup> <sup>! pecked</sup>) at by the reigning lords, to the attempting his ruin, by all the means they could think of, particularly in cheating him of upwards of £100, money laid out by their orders, under their hands, (<sup>MS. omits 'under their hands'</sup>) still appearing about the Church, and me as much upon the same account, which hath the appearance of demonstration as to their morals.

In or about the time of the death of the said Mr. Rogers, (<sup>MS.—ad. Rogers</sup>) Mr. Daniel Gwin came in collector of the customs, and agents (<sup>MS.</sup> agent) of the Pacquets, and I well remember that when Sir Peter put the arrangement (<sup>MS.</sup> management) of the estate into Mr. Quarmer's hands, he specially charg'd and instructed him to live well with the said Mr. Gwin, as greatly for Sir Peter's interest he should, and did so for 2 or 3 years. But Mr. Corker growing great, and getting (<sup>MS.</sup> got) to the head of the (<sup>MS.—of the said</sup>) Corporation, could not brook or away with the said Mr. Gwin's not submitting to it, and encourag'd by his having debauch'd Edward Pearce from Sir Peter's interest, as aforesaid, and seeing a proper tool for his purpose, he soon debauch'd him also, and greatly assisting in the ruining of the said Mr. Gwin, which in a few years (? by) hard labour, and villanous means, he effected, to the utter ruin of Mr. Gwin and his family, as is well known to some still living, and greatly to the prejudice of Sir Peter's estate, and manifest terrour of all that (<sup>MS.—a manifest</sup> <sup>terror to any who</sup>) wished him well, or did anything by trade, fair dealing, or building to the improvement of the (<sup>MS.</sup> his) estate, as was manifest

the said Mr. Gwin did, and would have done more had he been suffer'd to live. I say—suffer'd to live, (<sup>MS. omits I say</sup><sub>suffered to live</sub>)—for that he was so harrassed by villanous false informations, that it may be said he died upon the spot thereby.

In the late warr the town in general reap'd great benefit from the Dutch privateers frequenting ye harbour, some one or more of them being alternately in port to refitt and victual, at the expence of about £100 a day, as I remember was then computed; besides which the town's people enrich'd themselves greatly by the cheap bargains of plunder they bought of the Dutch seamen. But Stephen Read, a Quaker, being so firmly established agent for these Dutch privateers, that by all his attempts Mr. Corker not being able to get any of the said beneficial business to himself, and seeing the tenants to the estate (<sup>MS. omits to</sup><sub>the estate</sub>) enriching themselves thereby, he set his brains to work how to disturb, disgust, and provoke the said privateers to leave the place, which sort of villanous practices must have been very gross and apparent for them (<sup>MS.</sup><sub>they</sub>) to observe them; and in my frequent absence having but poor intelligence of what was doing, was first surpris'd with the town's being, as it were, in arms,—on a capital privateer, the Great Pearl, of 50 guns, and 400 men, being brought into the peer to clean, victual, (<sup>MS.</sup><sub>victual</sub>) and refresh, and watch set and proclamation made of the said ship its being infected with the plague, and by Mr. Pender, Mayor, a poor creature, Mr. Corker's tool,—none else being admitted\* (<sup>MS.—admitted into</sup><sub>the Body</sub>) to or from the ship, with strict charge to the watch not to suffer any of ye said seamen to enter the Town; nay, they had so frighted all people with ye plague, that I could not get any of my Publick Houses, not within the Lords' jurisdiction, to take in these poor people. But I, fortunately for them, being upon the spot, and, being a fine season of weather, ye middle of May, after my having been on board ye ship for my being better satisfied as too ye true state of their Health, I found 17 of the men apparently down of their wounds received in their late fight, and by their Book but two dead in the ship of sickness in 5 months time since since they had left Holland, and 100 and odd down of the Scurvy,

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\* Wade MS. ends here.

—when I took all on shore, sick and well, except the Officers, who desired to stay on board to tend ye business of the ship; ye most sick I lodged in the stable and barn, upon fresh straw, ye rest under ye hedge in the walk, some under tents of their sails others only upon straw; when by the blessing of God, diligent care, mutton broth, water grewel, and lemons and oranges in their small beer, with a prudent mixture of brandy and the assistance of their own 2 expert surgeons, I had the pleasure to see them all sett upright again, before the ship was ready to go to sea, except 2 who died of their wounds, and one of sickness. I had not been got out of ye country above a month, when I was advised of a Barbarous murder committed by one of the soldiers of ye castle upon ye Body of one of the Dutch seamen then in port, by stabbing behind in the Back dead at his feet, without ever exchanging a word, or so much as seeing his Face till Dead; which Terrible act I enquired into ye circumstances of it ye best I could, and found as aforesaid, and in as clear a light, that the said Soldier must have been sett on by some uncommon inducement to do the deed, but by whom I could never attain ye certainty off, not by Pendor the Mayor I was satisfied, from its being a matter beyond ye management of so poor and timerous a creature; nor could I charge Mr. Corker or Richard Cook, Tide Surveyor, or his abandoned creature with it, in proof. But well known it was, and must still be remembered by many living, that tho' the said Cook was excusable from his office, and never to his dying Day before or since was he upon any jury, yet he put himself Foreman upon the Coroner's Jury, to bring this Soldier off for manslaughter, tho' it be well known that ye Special Act against stabbing (such as this case) admits of no manslaughter, but in direct words declares ye same to be murder; yet by ways and means by the visible industry of ye said Cook, foreman as aforesaid of the Coroner's Jury, ye fact was brought in manslaughter. And with ye said murder I had word to London from ye said Read, the Agent of ye said privateers, and others of ye said privateers, being determined to leave the place, as I had but too much reason to conclude they; would and must have been so in consequence, had not said Read's Agent bestir'd himself as well at Flushing in Holland as at London, to put the matter in its true light, backed by me, who had acquired some esteem

amongst the Commanders of those Dutch privateers; but when the Lent Assizes came on, and this wretched murderer was to be tryed, Messrs. Corker, Pender, ye Russells, Father and Son, and Cock, with all their Industry, thought it necessary, and did personally attend the Sizes to bring this wretch off; in which by dark ways and means they succeeded with ye Jury, and Imposed upon ye Judge, in causing it to be pleaded, that the cause could not be brought within the meaning of the act of Stabbing, ye Coroner's Jury having brought it in Manslaughter; sure a flagrant Instance in these (? *men*) of their sparing neither Industry to ruin the Town, to the good and prosperity whereof they are by their Charter sworne; but good Mr. Quarme cleared them of all scruples in ye case by declaring, that ye sworn Members of the Corporation are the Town, to whose good and prosperity they are sworne, exclusive of all others. These gentlemen not only brought their man home in triumph, but seemed to have something more for him to do; for that I finding (? *him*) one night in ye Duske of Evening lurking in Arwenack Walk with a long sword by his side, in sight longer than ye Regimental one, I told him that he should do my Business to my Face if he could, and Drew; but instead of doing the like, he sneaked off, but not without some hearty kicks, and had I not insisted strenuously with ye Commanding Officer on his being sent to some other Garrison, it was more than probable he was intended for the instrument of further mischief.

Thus, Sir, you have some particulars which to me hath ye appearance of deserving attention and reflection, and to which I could add considerably, but in justice to myself hold it not necessary in justification of Sir Peter Killigrew's conduct and my own with this Corporation, I must promise (? *promise*) and answer some objections which have been or may be made thereto, viz., "that had Sir P. K. that second (? *the second*) at his first coming into the estate, in a few years after the Charter was granted, been mindfull of his Interest in ye place, ye Corporation could not have grown upon him in the manner it did."

I answer, that Sir Peter then, and for severall years after, was much taken up at London as receiver General for the Duchy of Cornwall, and other his weighty concerns therewith; which and his having for Steward a Smooth Oyly penned Attorney, Giles

Draper by name, Town Clerk of the Corporation, who always pretended that by virtue of his office he would keep the Corporation in order and subservient to Sir Peter's Interest, but when Sir Peter came to be at leisure to look into ye premises(? *promises*), he found he had not only in the general betray'd Sir Peter therein to ye said Rogers, but in particular had drawn in Sir Peter to grant a 21 years' lease of the Market to the Corporation at £20 Rent, which Terminated in 91.

"That had Sir Peter been a man of lenity and ye least Generosity, he must have won upon ye Towns people, and have gained their dutifull affection."

That who ever knew Sir Peter Killigrew must own his goodness and generosity, in many respects to a fault; and as a further Instance of his undeserved goodness to ye Corporation, by the villanous inducement of Mr. Quarne, his then Steward, in 1693 he granted them a 2nd 21 years Lease at the like rent of £20, Terminating in 1714, ye then Warrs continuing most part of the said Lease, when the market yielded these great Lords about £100 a year; and what return of any kind did they ever make to Sir Peter or his family? Ye foregoing is a Demonstration; and yet their aversion and prejudice and malice is not to any particulae person, but is, and ever will be, to the possessor of the Estate; the attack, as is plain from their own pleadings to your Face, as if . . . . .their being great men in spirit and possessed of a Charter, but without revenue, is their greivance, ye Sole and only case of any Corporation in the Kingdom, as allowing it to be the fact, ye others, their acquisitions, if looked into, will be found to arise from fraud and oppression of unwary people. For Instance ye next found with in the memory of man had little or no Revenue, till by villanous means they got into and ousted poor Lukey of his Estate; ye particulars whereof by Title Deeds I have had before me as clear as the Sun, but his reduced poverty was such as made it impracti(ca)ble my Releiveing him.

"That to the year 1700, which I succeeded Mr. Quarne in ye Stewardship of the Estate, ye Corporation had been left to enjoy their Rights and privileges in a tolerable degree. But from that time, till my power Terminated, I took all occasions of being intolerable troublesome and arbitrary under the General Character of the worst of men."

Its own'd that from my coming into the Estate in the management of it, that is in the year 1700, in a year or two after that, I had in some degree Blunder'd into the true merits of the Estate's Interest, and having notoriously exploded Mr. Quarmer then late Stewardship, and Mr. Corker finding I was not to be corrupted from my Duty, the alarm was taken against me, and I pelted and bespatterd, as is well known thro' the County, that without any resentment from me further than that having a close eye to the Interest of ye Estate; but the question stands fairly open in 35 years' time, that I had the Estate under my management, in (? *to*) due proof: who did I injure in word or deed to the value of a penny? and am bold to deny ye least fact of that nature; my being ever ready to assist and serve the people in general I shall refer to their own consciences; only shall observe on one flagrant Instance of my humanity to them, viz., that from ye (? *year*) 1701, beginning with Judith Wickham widow of Joseph Dickham, (? *Wickham*) to the year 1733 inclusive, whoever built upon new Ground without fine, or that did pay me fine for any lease in possession or reversion, and within 7 years from such their fineing did lose by death all or any of their life or lives, for which they had so fined, I constantly gave 'em new life or lives, or chang'd 'em at their desire, at a fine never exceeding Five Guineas, and often for less, when I might had large Sums of money for such renewals,—an Instance of lenity not easily preceded.

“That I sold the living at Falmouth to Mr. Millington for £500, and a second time within the year or thereabouts to Mr. Walmsley for ye like sum of £500,” was firmly reported at Falmouth, and as generally believed. In so much that Dr. Hawkins, coming to preach at Falmouth before Mr. Walmsley's arrival, and dyneing at the Standard, there before all ye company said, I was a lucky man to get two such sums in so short a time, and was contradicted by none. It is true ye proving a negative to demonstration is difficult, yet in ye case of Millington I hold myself capable of doing it, as thus: upon his Death his Disappointed Widow of her continued Grandure therein, was induced by a chief leading Lord of ye Corporation, an Attorney, to bring her Bill in the Exchequer against me, and carried on to a Tryal with virulency, for that ye contest cost the widow upwards



of £100, as it appear(s) upon record that I owed her £40 and she me £7,—I say with virulency, for that ye contest cost the widow upwards of £100 and me as much.

Is it not clear to good sense, that had I made any colisive (? *collusive*) bargain with her Husband for ye living, down to the smallest gratification or promise of any kind, it must have been charged upon me in her said Bill, when she could risk nothing by the discovery of ye Simony, but must had the pleasure of defaming me upon record thereby? ye man I found a poor curate at Danbury in Essex, his Father a poor Carpenter at Whetham in ye said County, and sent ye Poor Man at his going into ye living £70 pounds.

As to my making any Simoni(a)call bargain with that good man Mr. Walmsley, the present Incumbent,—his circumstances at his coming into it skreene me from all ye least probable suspicion in his case; all which I trouble you with to show you ye virulent temper of these people, of which you must expect sooner or later to have a taste, if you pretend to have so close an eye to your Interest in the Estate as I have done. In saying 'the people,' I would not have it taken in a general sense; for that I have good reason to believe, excepting 3 or 4 of ye governing Lords, ye rest of the people would rejoice, and find their account in seeing their Lordships brought to reason.

In the year 1725 I was down with them at Falmouth, and apprehending from my growing years it might be the last time, as it proved, I attempted to put an end to all differences with the Corporation, and had the appearance of succeeding therein, but as it proved, so in nothing but exchanging their good words for my solid bounty to them.\* I gave them their Town House in Fee,† for which I had been offer'd £300 pounds by the late John Attwell for a lease only of Three lives, and withall gave them their new Maces, which cost me £100, but oversett such my bounty in refusing them a grant of the Market, which I declined in the most reasonable Termes I could, reminding them of the poor returns they

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\* Two silver alms-dishes both bear the same inscription, and are stamped with the Killigrew Arms: "the gift of Martin Killigrew, Esq., to the church of Falmouth 1719," (1) 41° 5; (2) 40° 19. A large silver paten was probably another gift of his: "Deo et ecclesiæ de Falmouth Anno Domini 1715 D.D.D."

† The old Town Hall in High Street has lately been sold to the Oddfellows, for their Hall.



had made to Sir Peter Killigrew for the two 21 years' Leases he he had given them of this market, to his Loss and their Benefit to the amount of more than Two Thousand pounds, as is apparent from the present produce thereof in this much worsetimes; withall reminding them of their several incroachments, when they had the Market, beyond ye intention or words of the Grant, in particular,\* Bushellage from ships delivering att the Strand, which they continue to this day, as of their own Right now they have no pretence for it as farmers of the Market; which refusall of ye Market did so exasperate their Worships that I had not been gone out of the Country half a year, before they had fresh recourse to their old Incroachments upon, and abuse of, the Tenants, with more vigour and abuse than ever, I say shamfull and personall abuse of me apparently to couller (*colour*) their aim at making breach in the Estate; and it will be found that who ever (? *whatever*) possessor of ye Estate shall aim at withstanding these Lords' practices, will be personally treated by them as I have been. More, much more, I could justly add, even to the amount of the foregoing, but the hints I have given I hold sufficient for any wise man's Government; so shall conclude with averring, what I shall firmly Dye in the opinion of, viz., that if ye possessors of the Estate, by firm persevering means, shall not bring these Lords to reason, they will assuredly sooner or later from incidents, to which private Life is subject, have and take advantage of such incidents for ye making Breach into ye estate to the utter ruin of it, in which the neighbouring Towns and Gent<sup>e</sup> (? *Gentlemen*) will come in aid, as assuredly as they were zealously Industrious in opposing ye original rise of the Town, which is and hath been more envied than any gentleman's Estate in the County.

2nd Dec., 1733. (? 1738).

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\* Thomas (p. 70) restricts this duty to coal-vessels.

## MEMORANDUM OUT OF YE REGISTER (MADE MAY 10, 1758.)

(COPIED FROM THE WADE MS.)

1st.—Memorandum. That in ye year of our Lord, 1660, Charles II, by the Grace of God, &c., did by proclamation command that Smithick, alias Peny come Quick, should from, and forever after the 20th Augt., 1660, be called by the name of Falmouth, and not otherwise.

2nd.—In 1662 the king granted a weekly markett to be held at Falmouth, upon Thursday, as also two fairs, the one in July, the other on Octr. 30th.

3rd.—Sir P. Killigrew obtained money of ye King, and of His Royal Highness James, Duke of York, and from many other honourable and worshipfull persons,\* as are expressed elsewhere in a catalogue, to build a parish church and minister's house for ye town of Falmouth.

4th.—Aug. 29, 1662. Sir P. Killigrew was pleased to measure out ground, which he devoted for the use of the Parish Church, the Church yard, and minister's house, at which time they began for to dig, for to lay the foundation of the Church; which was so finished, that upon Feb. 21, 1663, the first sermon was preach'd by John Beddford, of St. Gerence, the text being Gen. 23, 20v.; and on March 27 following, both sacraments adminster'd by the said John Beddford, Sir Peter having procured a licence for the same from the Archbishop.

5th.—June 27th, 1664. The town of Falmouth was (after much opposition), by an Act of Parliament obtained by Sir P. Killigrew, separated from the parish of Budock, and made a parish of itself, and bounded as it is by Act expressed.

6th.—Aug. 22, 1665. The church,† after many solicitations made by Sir. P. Killigrew, was consecrated by the Rt. Rev. Father the Lord Bishop of Exon, and called by the name of Charles, the first King and Marter. The consecration sermon was preach'd by Mr. John Beddford, Rector of Gerence, the text, Gen. 28, the 20, 21, 22 verses.

The date of the Charter of Incorporation, making Falmouth a borough, was Oct. 5, 1661. An Act passed in 1670 fixed the boundaries, right of presentation to the rectory, and quay dues. (This note seems to be a late addition.)

\*By the kindness of the Rev. B. Christopherson, the present rector, I have seen a large chalice and small paten of silver, both inscribed thus: "The gift of ye right Honor<sup>ble</sup> Cristian Countis Dowager of Devonsheir to y<sup>e</sup> New Church of Falmouth in Cornwall. An: Dom: 1663."

† The following notes continue its history to the present time.

In 1684 a chancel was built by Walter Quarme, Rector, at his own charge, which was taken down in 1813.

In 1686 a gallery was built at the west end at the cost of Sir Peter Killigrew and Mr. Bryan Rogers, which was taken down in 1749.

In 1695 a gallery was built on the north side by contributions.

In 1702-3 a gallery was added on the south side, and an organ placed at the west end. (*See Falmouth M.S.*)

In 1706 the church and chancel were paved at the cost of Mr. Robert Corker, and alterations made in the chancel at the charge of the Parish.

In 1813 a faculty was obtained for the additions at the east end; the subscriptions covered the cost, £1643.

The tower is not expressly mentioned, but probably included in the additions made in 1749-50, at the west end, at the cost of £599, defrayed by subscriptions. The original church was surmounted by a spire, as in Plate B.

APPENDIX, CONTAINING THE PREAMBLE OF THE CHARTER OF  
THE BOROUGH OF TRURO, GRANTED A.D. 1588.

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*(Quoted to illustrate the statements respecting the Mayoralty of Falmouth and the silting of the river Fal, which have been printed in the preceding pages.)*

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Elizabeth by the grace of God &c. To all to whom these presents shall come greeting.

Whereas our Borough of Truro, in the County of Cornwall, is an ancient Borough, situate upon the sea coast, and included within part of the harbour of Falmouth; and the Mayor of the said Borough is, and hath a long time been called, (in common speech as well as otherwise) and been reputed by the name of Mayor of Falmouth. And whereas, also, the harbour of Falmouth at present is in decay, and needeth speedy preservation for the holding and entering of ships therein, because great quantities of rubbish have flowed into the same by reason of the continual working of the tanners, to the great damage of the said Harbour; and whereas the said Borough of Truro is likewise much the worse for the same course, a ship of thirty tons being now scarce able to come in, whereas ships of one hundred tons could and were wont to come in well loaded to the said Borough.

A VALUATION OF THE LANDS & GOODS OF THE INHABITANTS  
OF PENWITH, TEMP. HENRY VIII. EXCHEQUER Q. R. LAY  
SUBSIDIES, CORNWALL  $\frac{87}{125}$ .

EDITED BY H. MICHELL WHITLEY, F.G.S.

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The Subsidy Rolls preserved at our Public Record Office are replete with interest for the archæologist, and indeed for all who take an interest in the history of England. Amongst these rolls is a valuation of the lands and goods of the inhabitants of Penwith, made for the purpose of a subsidy between the years 1509 and 1523, which is one of the finest and fullest rolls relating to Cornwall, and as such has been selected by the Council for publication.

The Hundred of Penwith consists of 24 parishes, but the parishes of Uny—Redruth, Illogan, Crowan, and a part of Camborne are missing.

The return for each parish commences with a valuation of the Rectory, and then follows the yearly value of the lands within the parish, the value of the goods of the inhabitants and their harness, and finally the aliens within the parish are assessed.

The value of money at the date of this roll may be taken as having a purchasing power of twelve times its present amount; a penny being equal to a shilling now.

With regard to the value of land we are not without a guide. Bishop Latimer in his sermons, p. 101, says: "My father was a yeoman, and had no lands of his own; only he had a farm of three or four pounds by the year at the uttermost, and hereupon he tilled so much as kept half-a-dozen men.

"He had walk for a hundred sheep, and my mother milked thirty kine. He was able and did find the king a harness with himself and his horse. I remember that I buckled on his harness when he went to Blackheath field. He kept me to school, or else I had not been able to have preached before the

king's majesty now. He married my sisters with five pounds, or twenty nobles, each, having brought them up in godliness and fear of God. He kept hospitality for his poor neighbours, and some alms he gave to the poor, and all this he did of the said farm."

In dealing with this question we must also bear in mind the rapid increase in value in the "spacious times of Queen Elizabeth," when the English nation awoke and entered on the grand and imperial career; of which we see the splendid results in the times of Queen Victoria.

Harrison tells us that at the beginning of the century (the time from which this valuation dates) farms were let at four pounds a year, which in 1576 had been raised to forty, fifty, or a hundred pounds.

It is necessary to bear this in mind in considering the valuation of the lands in the various parishes, and it is also necessary to remember the different conditions under which land is now held, and that which obtained during the feudal system.

The accumulation of capital was then not desired, but rather the well being of the commonwealth; and the state interfered for the protection of the labourer, and the regulation of his wages. These facts will account for the small sums, as we should now regard them, at which the principal landowners in the various parishes were assessed.

As an example I will take the representative of the family of Levelis of Trewoof or Trove, the remains of whose ancient manor house are still extant on a sunny slope near Lamorna. From the ruins it must have been a fine old mansion built by

"The worthy family that flourished here;  
Since William's conquest full six hundred year."

They were the principal people in the parish, and at the time of this will, Johanna daughter and sole heiress of John Trewoof had carried the estate to Thomas Levelis of Castle Horneck and Landewednack, who settled at Trove; yet in the return for Buryan Parish, Thomas Levelis's lands are valued at three pounds per annum, and his goods at fifteen pounds.

Carew, writing in the time of Queen Elizabeth, states broadly that "the western Cornish by a like but more

compendious manner entitle one another with his owne and his father's christian name, and conclude with the place of his dwelling; as John the sonne of Thomas, dwelling at Pendarvis, is called John Thomas Pendarvis. Richard his yonger brother is named Richard Thomas Pendarvis, etc., through which means, divers Gentlemen and others have changed their names by remooving their dwellings, as Trengove to Nance, Bonithon to Carclew, two brethren of the Thomasses, the one to Carnsew, the other to Rescroe, and many other."

This is a definite statement, and written by one living in Cornwall in the time of Queen Elizabeth, and personally acquainted, as no doubt he was, with the examples he give us, will carry deserved weight, and yet the numerous subsidy rolls extending over many generations that I have consulted at the Public Record Office hardly bear it out as a general rule, in fact they rather bear testimony not to the change but to the permanence of family names.

Referring to the present list, Thomas Levelis although he married the heiress of Trove and removed there to live was still known as Thomas Levelis, and the only names that seem to bear out the theory are "John Arundell Talfren" and "John Arundell Trerise," and it is here clearly evident that the names of the houses were added to distinguish between John Arundell of Tolvern, and John Arundell of Trerise. I think, therefore, we may fairly conclude that Carew's statement as to the change of family names with residence did not obtain in every case.

It is now time to turn to the subsidy valuation itself, which is in excellent preservation, and written in a paper book of 33 folios.

And first as to the rectories of the churches.

Gwinear was in the possession of the Prior and Canons of the church of St. Thomas of Glasney, as well as Zennor, and St. Just.

The Prior and Convent of St. Germans, held Sancreed and Gulvall.

The Canons of Kryton (*Crediton*), held Uny Lelant and St. Ives.

The Dean and Chapter of Exeter, held St Erth.

The Abbess and Sisters of S. Saviour and S. Bridgett, held S. Hillary.

The Prior and Brethren of the house of S. John's, Smithfield, held Maddron.

The Dean of Burian, held S. Levan and Sennan as well as Burian, and,

The Convent of Haylys, held Paul.

The remaining advowsons were in the hands of the clergy of the respective parishes.

A word as to the aliens, their names are given and they are invariably, although born in Britain, subjects of the King of France.

Amongst surnames that of Britton is almost universal, and it seems to have been adopted by aliens generally.

The principal landowners and inhabitants in the Hundred as given in this return are worth notice; and briefly they are as follows:

In Camborne, there were some wealthy men, no doubt merchants; as William Bree is returned as being worth £200 in goods, the richest man in Penwith; whilst George Ryse and Nicholas Vigham are assessed at £40; amongst the aliens Peter, servant to Nicholas Mertherderwa, attracts notice from the musical Cornish name of his Master.

Gwinear is the next parish, and here George Vear, worth in lands £15 per annum; John Killigrew, £8; Anthony Wyrthe, £4; and Elizabeth Milleton, £7, head the list of landowners, whilst amongst others are Lanyon, Mohun, Arundell, and Seyntaubyn.

In Gwithian, the only large landowner was Sir John Arundell, who owned Conarton, and was assessed at £20 a year. The Arundells also were the principal landowners in Phillack, with Lady Hastings and John Tregliston. In Uny Lelant, Lady Hastings held the most lands, being returned at £23. And in Towednack and Zennor, Catherine Lady Brook had lands to the value of £10 and £6 annually, respectively. And these two ladies also held lands in S. Ives and S. Erth.

In the latter parish, Jacob Trewynnard, who lived at the old

mansion of Trewinnard, held land to the value of ten marks, and was worth sixty pounds in goods.

In the town of Markesyowe (*Marazion*), John Reskymmer was the largest landowner, and Michael Chynow, Jacob Chynow, and John Mercer, the richest men.

The parish of Maddron possessed a rich vicar, Benedict Tregoos, his income being thirty pounds a year, whilst he was worth in goods one hundred pounds, being the richest man.

Amongst the return occurs :

“The store of Sentt Maddron, iiij li.

The store of Sentt Bridjett, v marks.”

The Dean of Burian is returned as having an income of forty pounds, and the landowners in the Parish included a Trevelyian, Boscawen, Boscawen Roos, Trevanyon, Polwhyle, Penkevall, Levelys, Rosmoddras, Killyowe, Gotholghan (*Godolphin*), Treruffe, Vivian, Arundell, Bevyll, Kenegye, Bonython, Tregenna, Pentyre, Trewynnard, Seyntaubyn, and Basset.

The most populous parish was St. Ives, which of course included the town which contained 68 inhabitants assessed and 23 aliens. Next came Maddron with 57, Burian and Uny Lelant with 52 inhabitants assessed, and 15 and 6 aliens respectively.

If we assume 5 persons to a household and neglect the aliens who it will be noticed were in many instances servants, and resided with their masters, we obtain the following approximate estimate of the population of Penwith in the early part of the 16th century.

Name of Parish.	No. of Inhabitants.	Aliens.	Estimated Population.
Uny Redruth . . . .	—	missing . . . .	—
Illogan . . . .	—	do. . . .	—
Crowan . . . .	—	do. . . .	—
Camborne . . . .	—	part missing . . . .	—
Gwinear . . . .	44	10	220
Gwithian . . . .	15	0	60
Phillack . . . .	22	0	110
Uny Lelant . . . .	52	6	260
Towednack . . . .	10	0	50



Zennor	....	16	....	0	....	80
St. Ives	....	68	....	23	....	340
St. Erth	....	34	....	7	....	170
Perranuthno	....	18	....	0	....	90
St. Hillary	....	47	....	2	....	235
Town of Marazion }	....	23	....	5	....	125
Gulvall	....	32	....	2	....	160
Ludgvan	....	42	....	3	....	210
Madron	....	57	....	4	....	285
Town of Penzance }	....	39	....	14	....	195
St. Just	....	37	....	3	....	185
Senan	....	13	....	1	....	65
St. Levan	....	18	....	3	....	90
Burian	....	52	....	15	....	260
Paul	....	37	....	( — )	....	185
Town of Mousehole }	....	27	....	( 23 )	....	135
Sancred	....	20	....	2	....	100

With these introductory remarks I must commend the roll to the careful study of those interested in the subject.

### EXCHEQUER Q.R. LAY SUBSIDIES.

CORNWALL  $\frac{87}{128}$ .

[temp Hen. VIII inter 1509 et 1523.]

[A PORTION MISSING]

[f. 1]

Cambroñ adhuc.

The value of the goodes.

16	{	Joñes Jamys valzt in bonis	}	iiij li xiiij ſ. iiij d.
		Michell Johñ Jamys		
		Nichus Pascowe		
15	{	Alexander Gentyll	}	x marke
		Henriç Trenbagh		
16		Witlms Cuffe		xl ſ
		Witlms Bree		cc li
13	{	Georgius Ryse	}	xl li
		Joñes Kerowe		xl ſ
16	{	Witlms Kerowe	}	xl ſ
		Stephus Bose		vij marke

13	Nichus Vighañ	xl li
16	{ Joñes Pyddra	xl s
	{ Riçus Carane	xl s
	Benedicť Richardť Capellanť	paup
Nať in Ptibz Britannie sub obedienť Rege Franc		
Aliegiñ		
16	{ Joñes Fokett tayler	x s
	{ Ewryñ Briandť laborer	xij s
	{ Rogidus Smyth	x s
	{ Joñes Wever	ij s vj d
	{ Ewryñ Brittoñ	iiij s iiij d
	{ Petrus svantť Nicho Mertherderwa	vj s viij d
	{ Petrus s Rognaldť Smyth	} pauper
{ Vdinť s Henriç Roswarñ		
[f. 1b.]		
Pochia	1 Ppoitť t Canonici eccleie Sći Thome	} xxij li
de	Martirē de Glasney vať iñm p añ	
Winier	in decimis garbarē obvēť t alijs emolumētē eidm Rectorie ptiñ	
	3 Wiñms Treberveth Cćicus vicariť	} viij li
	eccleie pochis iñm valet p añ in	
	decimis oblať obvēť t alijs emol- umētē eidm vicarie spect	
The value of the landē wťin the same pishe by yť yere.		
10	Georgius Vear valet in terreť t teñ	} xv li
	iñm p añ	
11	Joñes Kylygrewe	vij li
12	Antoniť Wyrthe	iiij li
11	Elizabeth Miletoñ	vij li
12	{ Georgius Polkynhorn	xxxij s iiij d
	{ Thomas Polkynhorn	xxxij s iiij d
	{ Wiñms Lanyene	xl s
	{ Stephus Polwhyle	xxxiiij s
	{ Rogdus Mohuñ	xvij s
	{ Thom's Penwerñ t Jať Clerk	xiiij s
	{ Rogerus Arundellť t Joñes T'valscus	xxxij s iiij d
	{ Joñes Arundell Miles	xxix s
	{ Stephus Roswarñ	xiiij s iiij d
	{ Adañ Cloghe	xij s viij d
	{ Thom's Spnañ	xxxij s iiij d
	{ Wiñms Chycose	xiiij s
	{ Bryandť Lansalus	} xv s viij d
	{ Meliora Boffrawell	
	{ Thom's Trevnwť	
	Joñes Rosogañ	xxij s
		xl s

[f. 2]	{	Thom <sup>s</sup> Seyntaubyn	xij s̃
		Joñes Coiswyn	xxxviiij s̃
12	{	Thomas Tretherff	xl s̃
		Wifms Carnsvowe	iiij li
		Hered Colañ	ix s̃
		Hered Margaritt Kylligrew	xl s̃
		Joñes Arundell Talffreñ	ix s̃
		Hered Edmude Arundell	xvj s̃
		Edmond <sup>9</sup> Mathie	C s̃
12		Rogerus Dewyn	xx s̃

The value of the goodē of thenhit<sup>a</sup>ntē  
w<sup>t</sup>in the seid pishe t̃ thei<sup>r</sup> harnes

14	{	Robertus Johñ Michell valz in bonis	xx markē
		Stephus Carweddros	x li
13		Thom <sup>s</sup> Polkynhorn	l li
11		Alan <sup>9</sup> Powe	xx markē
16		Joñes Michell	iiij li
15	{	Stephus Gwyn	} viij li
		Wifms fit eius	
		Wifms Organ	x li
14	{	Wifms Richard	} xx markē
		Jenkyñ fit ei <sup>9</sup>	

[f. 2b.]

Wynyer adhuc

The value of the goodē

15		David Cnyffe valz in bonis	x markē
16		Radphus Coiswyn	iiij li
15	{	Joñes Engove	C s̃
		Joñes Chynow <sup>t</sup>	vij li xiiij s̃ iiij d̃
16	{	Jenkyñ Lanhadyr	xl s̃
		Jacka Thom <sup>s</sup>	iiij li
13		Joñes Michell Vighañ	xx li
16		Wifms Coiswyn	iiij markē
15		Thom <sup>s</sup> Johñ Stephyñ	C s̃
		Jenkyñ Powe	xl s̃
16	{	Radphus Thom <sup>s</sup> Jenkyñ	} iiij li
		Jenkyñ fit eius	
15		Phillip <sup>9</sup> Jamys	C s̃
16		Joñes Harry Goundrye	xl s̃
15		Joñes Jamys	C s̃
		Henric <sup>9</sup> Engoffe	v markē
16	{	Jacobz Stoye	} iiij li
		Jenkyñ fit ei <sup>9</sup>	
14		Wifms Hervie	xx markē

16	{	Willelms Jamys	xl s
		Joñes Thom's	iiij li
		Joñes Whyta	} iiij li
		Ričus Hervie	
15	{	Joñes Perç	} vj li
		Jacobz Johñ	
14	{	Joñes Thom's Talscoise	} x i
		Joñes fit ei	
13		Rič Rede	xx li

[f. 3]

Wynyer adhuc

14	{	Henric Vdie	} x li
		Johñ Vdie	
15		Jacobz Harry	viiij markç
16		Thom's Viall	iiij li
15	{	Stephus Jamys	C s
		Henric Jenkyñ Capellan	paup
		Willelms Treberveth Clicus vicari	} xx li
		ecclie pochis iñm	

The aliens w<sup>t</sup>in the seid pisheNat in ptibz Britānie sub  
obedienç Regç Francoz

16	{	Alan Galz in bonis	iiij s iiij d
		Joñes Bretton de Gwynyer laborer	paup
		Willelms Britton de ead̄m tayler	vj s iiij d
		Willelms Johñ de ead̄m tynn	iiij s iiij d
		Morveñ Britton de ead̄m laborer	x s
		Willelms Michell de ead̄m tynn	iiij s iiij d
		Willelms Dorrers de ead̄m	ij s
		Joñes Harry	ij s iiij d
		Willelms Britton de ead̄m tynn	xl d
		Joñes Thomas de ead̄m tynn	xl d

[f. 3 b]  
Pochia  
de  
Gothiañ

Decime oblaç obvēç ⁊ alia emol-  
umēt ecclie pochis iñm ptinēt  
Johi Beld Rectori ecclie pochis  
de Sentt Felyce Et valēt ut postea  
apparebit i eadē poch

The value of the landç w<sup>t</sup>in the seid  
pishe by the yere.

9	{	Joñes Arundell miles valz in terf	} xx li
		⁊ teñ iñm p añ	

12	{	Petrus Egecumb miles	xxvj s viij d
		Thom's Tregoos	xxiiij s
		Thom's Chywartōn	iiij li
		Hereſ Gurlyñ	xlvi s
		Joñes Lyddra ⁊ Riçus Huchyñ	xxvij s
		Laurenç Pennance	xv s
		Nichus Vighañ	vj s viij d
		Stephus Osborn	viiij s
		Joñes Hicke capells	vij s
		Hereſ Blanche	iiiij s x d
		Joñes Cuyfe ⁊ Aleḡ Laurens	v s
		Thom's Penwerñ ⁊ Jaç clerḡ	v s

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>in</sup> the seið piſhe ⁊ theiſ harnes.

16	Willms Coḡ valz in bonis	iiiij li
14	{ Joñes Rawe	} xv li
	{ Willms Rawe	

[f. 4]

Gothian adhuc

The value of the goodē

15	Joñes Hockyn valz in bonis	C s
16	{ Robt <sup>o</sup> Thom's	v marke
	{ Pascasius Johñ	
15	Jacobz Rele	viiij li
16	Joñes Saundry	xl s
15	Rogts Mayhowe	C s
16	{ Riçus Tregenna	xl s
	{ Stepħs Trocker	
15	{ Joñes Thom's	Cxx s
	{ Jenkyñ Bossowsowe	
16	Stephus Thom's	xl s
	Willms Trewothnowe Capellan	paup

[f. 4 b] 1  
Pochia  
de  
Felyce

}	Joñes Beld <sup>o</sup> Cl <sup>icus</sup> Rector ecclie	} xl li
	pochis iðm ⁊ ecclie pochis de	
	Gothyan appendent p <sup>o</sup> dict ecclie	
	pochis de Felyce valz iðm p añ	
	in decimis oblate obvēç ⁊ alijs emolumēt eið Rectorie spect	

The value of the landē w<sup>in</sup> the  
seið piſhe by the yere.

12	{	Joñes Arundell Miles valz in t <sup>re</sup>	} iiij li
		⁊ teñ iðm p añ	
		Georgius Vear	l s
		Joñes Arundell Talfreñ	l s
		Comes de Wylshere	xiiij s
		Nichus Kenegie	xxiiij s

11	Dña de Hastyngē	C s̃
12	{ Rogtus Mohune	xliiij s̃
	{ Henricus Nanspiañ	iiij li
11	{ Hereſt Gurlyñ	v li x s̃
	{ Joñes Treglistoñ	v li x s̃
	Thom <sup>s</sup> Chywartoñ	xl s̃
12	{ Joñes Spgo <sup>u</sup>	xxiiij s̃
	{ Joñes Tomlyñ	xviij s̃
	Thom <sup>s</sup> Glynne	xx s̃
	Dña Joñna Arundell	iiij li x s̃

[f. 5]

Felyce adhuc

The value of the goode of thenhit<sup>nt</sup>e w<sup>in</sup>  
the seið pishe t̃ their harnes.

15	Galfridus Hicka valz in bonis	C s̃
16	Jenkyñ Whyta	iiij li
15	Henric <sup>l</sup> Legha	ix li
	Jacobz Omffra	x marke
	{ Henric <sup>l</sup> Nanspiañ	iiij li
	{ Joñes Porthmeſ	iiij li
16	{ Paul <sup>l</sup> Shoghe	iiij li
	{ Wiffms Wattye	xl s̃
	{ Joñes Vdye	iiij li
15	{ Joñes Henry	vij li
	{ Henric <sup>l</sup> Nicoll	iiij li
	{ Wiffms Kayle	iiij li
	{ Riçus Wattye	xl s̃
16	{ Riçus Browne	iiij li
	{ Wiffms Renowdyñ	iiij li
	{ Joñes Richard <sup>t</sup>	iiij li
	{ Wiffms Richard <sup>t</sup>	iiij li
	{ Joñes Fraweñ	iiij li
	{ Joñes Henry Hoskyñ	C s̃
15	{ Jacobz Fentenleſ	x marke
	{ Joñes Coyswyñ	vij li
	{ Joñes Gerves Capts	paup

[f. 5b.] 1  
Pochia  
de  
Ewny  
Lan<sup>nta</sup>

Chaunt t̃ Canonici dom<sup>l</sup> t̃ ecc<sup>ie</sup>  
de Kyrtoñ pp<sup>etarij</sup> Rectorie  
ecc<sup>ie</sup> pochis iðm t̃ ecc<sup>ie</sup> de Sent  
Ya ac Tewynnaſ Capell Append<sup>t</sup>  
dic<sup>t</sup> ecc<sup>ie</sup> valent in decimis obvēc  
t̃ alijs emolumēt eiðm Rector<sup>l</sup>  
spectant p̃ anñ

} liiij li

Jacobus Gentyff in decretē bacu-  
lari vicarius p̄dictar ecclie p̄chis  
iōm t̄ Capell eidm ecclie append  
valz iōm p̄ anñ in decimis oblaç  
obvēc̄ t̄ alijs emolumēt eidm  
vicarie ptinēt } xx li

The value of the lande w<sup>in</sup> the seid pishe by the yere.

9	Dña de Hastynge valz iōm in terr̄ t̄ teñ p̄ anñ	xxiiij li
12	Comes Wylshere	xx s̄
11	Joñes Arundell Miles	C s̄
12	Ričus Hals	iiij li
11	Rog <sup>ts</sup> Mohuñ	viiij li x s̄
[f. 6]	Thom <sup>s</sup> Trevnw <sup>t</sup>	xxvj s̄ viij d̄
	Joñes Marys	xx s̄
	Hered̄ Edmūdi Arundell	xx s̄
	Joñes Trigian	xij s̄
	Joñes Cokyn	xxiiij s̄
	Joñes Trewyke	xxvj s̄ viij d̄
	Hered̄ Calmadye	xl s̄
	Heñ Broughton	viiij s̄
	Thom <sup>s</sup> Tremene	xvj s̄
	Rogerus Arundell	iiij li
	Jacobz Trewynnard̄	xxxij s̄
	Dña de Syon valz in terr̄ t̄ teñ iōm p̄ anñ	x s̄
	Thom <sup>s</sup> Glynn	x s̄
	Joñes Payne	xxvj s̄ viij d̄
	Joñes Launce	xiiij s̄ iiij d̄
	Joñes Bowdyn	xxvj s̄ viij d̄
	Joñes Bosworveth	xij s̄
	Jacobz Nicoll	xiiij s̄ iiij d̄
	Willems Rychard̄	x s̄
	Joñes Bodreverañ	vj s̄ viij d̄
	Heres Gylyott	x s̄
	Joñes Nanscothañ	vj s̄ viij d̄
	Edwardus Pomaye Miles	l s̄
	Hered̄ Olyv Wyse	x s̄

[f. 6b.]

Pochia Ewny Lan<sup>ntta</sup> adhuc

The value of the goodē of thenhit<sup>ntē</sup> w<sup>in</sup>  
the seid pishe t̄ their harnes.

12	{ Joñes Niclis valet in bonis	iiij li
	{ Riçus Foxe	iiij li

	{ Riçus Renowdyñ	x li
	{ Joñes Bawdyñ	} xx marke
	{ Thomas Whyta	
	{ Philippus Walshe	xl s
	{ Wiflms Plemayne	xl s
	{ Edwardus Ewyñ	iiij li
13	Joñes Trewarnaile	CC marke
15	Joñes gvus eiñ	x marke
13	Jacob3 Caskeys	xl li
15	Wiflms Richard	vj li
14	Jacob3 Chynale	x li
	{ Joñes Wyllm	viiij li
	{ Oto Helyar	C s
15	{ Nichus Waryñ	} C s
	{ Joñes Niclis	
	{ Joñes Vstykk	} viij marke
	{ Henr Joñes	
15	{ Joñes Brencoise	} x marke
	{ Joñes filiñ eiñ	
	{ Martin filiñ eiñ	

[f. 7]

Ewny Lan<sup>a</sup>ntta adhuc

The value of the goodē

14	Joñes Thomas Hervye val3 in bonis	xiiij li
15	Joñes Gymball	x
	{ Joñes Boshaberthewe	} x li
14	{ Henr Boshaberthewe	
	{ Nichus Downe	x li
	{ Rogerus Thom <sup>s</sup>	C s
15	{ Edwardus Bochar	
	{ Riçus Polpeñ	
16	David Nynys	xl s
14	Joñes Stephyñ Thom <sup>s</sup>	xiiij li
15	Joñes Locke	vj li
16	Riçus Bronyoñ	xl s
15	{ Riçus Trerynke	} ix li
	{ Nichus Trerynk	



14	Thomas Nans	x li
15	{ Joñes Vynwyñ Joñes Symoñ	{ x markē
16	{ Riçus Worves Joñes Carnynye Stephūs Jenkyñ	{ xl š iiij ti xl š

[f. 7b.]

Pochia Ewnye Lan<sup>nt</sup> adhuc

The value of the goodē

15	Robtus Leytye valz in bonis	C š
14	Thom <sup>s</sup> Johñ	x ti
16	Nichūs Goundrye	iiij ti
15	{ Petrus Goengwyñ Stephūs Goengwyn	{ viij ti
16	Joñes Hawys	xl š
13	{ Wifms Thomas Stephūs Pawlye	{ xxx ti xx ti
14	Riçus Treanowe	x ti
9	Wifms Tyrruffe Capellañ	iiij ti vj š viij d

[f. 8]

Ewny Lan<sup>ntt</sup> adhucAliens w<sup>in</sup> the seid pishe

16	{	Petytt Johñ de Lan <sup>ntt</sup> laborer naĩ	{	ij š	
		in ptibz Britannie šb obediencĩ			
		Rege Francoz valet in bonis	{	ij š	
		Michaell Tarey de eađ naĩ in pť			
		Britānie sub obidenĩ Rege Francĩ			
		valz in bonis	{	xx đ	
Vdin <sup>sv</sup> Johñ Niclis de eađ laborer					
	nat in pť Britannie sub ob Rē				
	Francĩ valz in bonis				
Tudwañ <sup>sv</sup> Harĩ Hicke de eađm	{	paup			
			laborer naĩ in pť Britānie sub		
			obidenĩ Rē Francĩ		
Franciscus § Johis Stephyñ	{	de eađm laborer	{	paupeř	
Vdin <sup>§</sup> Stephyñ Luke					naĩ pť Britānie
					šb obediencĩ Rē
					Francĩ

[f. 8 b] This is a Chapell append<sup>nt</sup> to Ewny Lan<sup>ntt</sup>

Pochia de  
Tewynna<sup>k</sup>

The value of the lande w<sup>in</sup> the seið  
pyshe by the yere.

12	Dña de Hastynge valz in terr <sup>t</sup> t <sup>t</sup> teñ } iðm p añ	vj s
10	Kat <sup>i</sup> ina Dña de Broke	x ti
	He <sup>r</sup> Broughtoñ	iiij ti xiiij s iiij d
	Jo <sup>h</sup> es Bevy <sup>tt</sup>	x s
	Petrus Egecome Miles	xix s
12	Step <sup>h</sup> us Roswa <sup>tt</sup>	x s
	Thom <sup>s</sup> Trevnw <sup>t</sup>	vj s viij d
	Thom <sup>s</sup> Tregoos	xiiij s iiij d
	Jo <sup>h</sup> es Porthme <sup>r</sup>	viij s
	He <sup>r</sup> Harry Hicka	ix s

The value of the good<sup>e</sup> of then<sup>hit</sup>nt<sup>e</sup>  
w<sup>in</sup> the seið pishe t<sup>t</sup> their harnes

15	{ Matheus Nanscludyr valz in bonis } Jo <sup>h</sup> es Enbla	x mark <sup>e</sup> x mark <sup>e</sup>
16	David <sup>t</sup> Mathowe	xl s
15	Thomas Merthyr	x mark <sup>e</sup>
16	Joh <sup>n</sup> Will <sup>m</sup> Hicka	iiij ti
14	Stephy <sup>n</sup> Roswa <sup>tt</sup>	x ti
16	{ Jo <sup>h</sup> es Mathowe } Huchy <sup>n</sup> Drewe } Jo <sup>h</sup> es Huchy <sup>n</sup> }	xlviij s viij d iiij ti
	Jo <sup>h</sup> es Brettoñ Capella <sup>n</sup>	paup

[f. 9]

Pochia  
de  
Senar

3	P <sup>p</sup> oi <sup>t</sup> t <sup>t</sup> Canonici dom <sup>i</sup> t <sup>t</sup> ecclie s <sup>c</sup> i Thome Martir <sup>e</sup> de Glasney pp <sup>t</sup> etarij Rectorie ecclie pochis iðm valz in decimis obvēč t <sup>t</sup> alijs emolument <sup>i</sup> eiðm Rectorie spect <sup>t</sup> p añ	viij ti
4	Riçus Smyth C <sup>l</sup> icus vicari <sup>i</sup> ecclie pochis iðm valet in decimis oblaç obvēč t <sup>t</sup> alijs emolumēt eið <sup>t</sup> vacarie pti <sup>n</sup> p añ	xl s

The value of the lande w<sup>in</sup> the seid  
p<sup>is</sup>he by the yere.

12	{	Heř Broughtoñ valz in terř ʔ teñ	}	1 s
		p añ		
		Joñna Tresawañ		x s
		Wifms Gerves		xxj s
		Thom <sup>s</sup> Colrogger		x s
		Rogerus Arñdeñ		x s
		Heř Dyngh <sup>n</sup>		vij s
		Wifms Tregenna		xv s
		Joñes Chykembra		vj s
		Joñes Bevyñ		xij s
		Jenkyñ Gotholghañ		x s
		Heř Colañ		ij s vj d
11		Katerina Dña de Brooke		vj ti
12	{	Joñes Marishe	}	ij s vj d
		Oliverus Treyaghañ		iiij s iiij d
		Joñes Arundett Talfreñ		xxiiij s
		Ričus Pendree		xx s
		Joñes Reskymm		xx s
		Joñes Porthmeř		x s
		Heř Poyle		vj s viij d
		Joñes Trembrace		iiij s

Senar adhuc

[f. 9b]

The value of the lande

12	{	Joñes Coisewyñ valz in terř ʔ teñ	}	xx s
		p añ		
		Joñes Harry Robnett		iiij s iiij d
		Roglus Mohune		vij s
		Wifms Clemowe		vij s
		Heř Gurlyñ		x s
		Hugs Trevanyoñ		vij s iiij d
		Heř Calwodelye		vij s
		P <sup>l</sup> or ʔ Conventus de T <sup>w</sup> ardreth		vij s
		Thom <sup>s</sup> Trevnw <sup>t</sup>		vij s
		Joñes Kyllygrewe		xx s

The value of the goode of thenhit<sup>nt</sup>e w<sup>in</sup>  
the seid p<sup>is</sup>he ʔ their harnes\*

15	{	David Hockyñ	}	vañ in bonis	x marke
		Johñ Hockyñ			
		Joñes Treskawe			
		Thom <sup>s</sup> Joñes			

C s

\* The word "p<sup>is</sup>he" by error repeated.

16	Jacob3 Tregyrthyñ	xl š
	David Michell	} C š
	Thom's Davye	
	Joñes Trembagñ	} x markē
	Henric Trembagñ	
15	Rič Johñ	x markē
	Thom's Bosowe	} viij ti
	Joñes Bosowe	
	Henr Voos	x markē
16	Thom's Kerowe	xl š
15	Joñes Wyll'm	viij ti
	Ričus Smyth Clicus	x markē

[f. 10]

Pochia  
de YaRectoria ecclie pochis iñm ptinet Chauntoria  
de Kyrtoñ ut anteapat3

Vicaria iñm ptinet Jacobo Jentyñ at antea p3

The value of the landē w<sup>t</sup>in the seid pishe by the yere.

10	Katina Dña de Brooke val3 in t <sup>r</sup> e } xv ti	
	3 teñ iñm p añ	
	Comes Oxonie	iiij š x d
	Joñes Robnett	xix š
	Joñes Payne	xxvj š viij d
	Joñes Arundell Miles	xxvj š viij d
12	Ričus Joñes Huchyñ	xix š
	Willms Tregenna	xxx š
	Ričus Bossowsak	xj š x d
	Rogerus Arundell	xxxvij š x d
10	Thom's Glynne	xj ti
	Thom's Johñ Hamblye	x š
12	Joñes Tregiañ	xxiiij š
	Hugo Trevanyoñ	iiij š iiij d
10	Thom's Treynw <sup>t</sup>	x ti
	Heñ Reskym	ix š
	Heñ Calmadye	xl š
	Heñ Carnarthur	xviiij š
	Joñes Nanscothañ	xxxvj š
	Thom's Tremayne	xx š
12	P <sup>r</sup> or 3 Coventus de T <sup>w</sup> ardreth	iiij š viij d
	Joñes Jenkyñ	xxvj š viij d
	Joñes Powna	xx š
	Joñes Barbor	xxv š
	Joñes Spgor	xvj š
	Willms Boise	xiiij š iiij d

[f. 10b]

Pochia Ya adhuc  
The value of the lande

12	{	Joñes Bawdyñ valz in terr̃ ⁊ teñ	}	xxvj s viij d
		iñm p añ		l s
		Heñ Gurlyñ		xx s
		Joñes Hycke Capellañ		vij s
		Bernardus Whyta		v s
		Rog̃idus Mohuñ		vj s viij d
		Heñ Poyle		vij s
		Josse Ammett		xxvj s
		Simon Mathowe		xij s vj d
		Joñes Will <sup>m</sup> Hicka		xij s
		Thom <sup>s</sup> Tregoos		ij s
		Heñ Ot̃ Wyll <sup>m</sup> Stephyn		ix s
12	{	Vrm <sup>o</sup> Smyth	}	iiij s iiij d
		Thomas Trerythañ		xj s ij d
		Willms Baudyñ		x s
		Joñes Michett		viiij s
		Joñes Jack Davye		ix s iiij d
		Joñes Wolcoñ		iiij ti
		Heñ Thoñ Cokyñ		v s
		Henñ Nycott		xx s
		Joñes an Gayre		xx d
		Davye Bele		v s viij d
		Rađphus Browne		vij s viij d
		Thom <sup>s</sup> Launtoñ		ij s viij d
	{	Yve Gylbertt	}	vij s
		Vivian Borthalañ		xij s iiij d
		Henñ Botaleñ		

[f. 11]

Ya adhuc  
The value of the lande

12	{	Joñes Nowre valz in terre ⁊ teñ	}	xij s iiij d
		iñm p añ		viiij s viij d
		Ričus Thomas Robt		xvj s viij d
		Ričus Jack Ylla		xj s ix d
		Henric <sup>o</sup> Berowe		vj s iiij d
		Henric Drewe		iiij s ij d
	{	Joñes Syse	}	

The value of the good̃ of thenhit<sup>nt̃</sup> w<sup>in</sup>  
the seid̃ pishe ⁊ their harness.

14	Joñes Symoñ valet in bonis	xx mark̃
16	Henric Androwe	xl s

13	{ Thomas Glynne	xl li
	{ Joñes Jenkyñ	xx ti
	{ Thomas fit eiñ	
15	Rađphus Saundyʳ	C s̃
16	Joñes Rychard	iiij ti
	{ Joñes Jack Jenyñ	C s̃
15	{ Thomas Harry	C s̃
	{ Jacobʒ filiñ eius	
16	{ Alexandñ Johñ Pere	xl s̃
	{ Jacobʒ Pascowe	xl s̃
13	{ Joñes Nanscothañ	xxv ti
	{ Henricñ Berowe	xl marke
16	Jenkyñ Stephyñ	iiij ti
15	Georgius Robt	C s̃
16	Joñes Bowdyñ	iiij ti

[f. 11b]

Pochia de Ya adhuc

The value of the goodē

14	Joñes Bosynye valʒ in bonis	x ti
15	Henricñ Drewe	C s̃
14	Joñes Cokyñ	xx marke
	{ Joñes Payne	xx ti
13	{ Joñes Thomas	xl marke
	{ Robtus fit eius	
15	Cornelius Veañ	x marke
16	Joñes Gourge	xl s̃
13	Joñes Michett	xl marke
16	Ričus Bosvyne	xl s̃
15	{ Joñes Basavela	x marke
	{ Joñes Jack Davye	x marke
16	{ Henricñ Wattyē	iiij ti
	{ Joñes Pascowe	paup
14	Joñes Gooda	xiiij ti
16	{ Thomas Engove	iiij ti
	{ Ričus Thome	xl s̃
15	Willms Rowse	x marke
16	Thomas Mañ	xl s̃
14	Laurenç Goodale	xx marke
16	Petrus Nanscothañ	xl s̃
15	Symon Mathowe	x marke

16	{	Joñes Gyllyoth	iiij ti
		Joñes Thomas Nichoff	iiij ti
		Joñes Davie Ambros	iiij markē
		Joñes Treyffe	xl š
13		Joñes Owre	xx ti
15		Richard Thom Robt	viiij ti
		Joñes Jack Davye	p3 sup*

[f. 12]

Ya adhuc

The value of the goodē

16	{	Thomas Houke val3 in bonis	xl š
		Leonardus Goundrye	iiij ti
		Joñes Michell	xl š
15		Petrus Goundrye	x markē
16	{	Noclus Wyllm	iiij ti
		Thomas Corvagh	iiij ti
13		Thomas Trevnwyth	xl ti
16	{	Thomas Pere	xl š
		Joñes Wolcoł	iiij markē
		Joñes Alañ	xl š
15		Joñes Bosowe	C š
16	{	Rađphus Bround	xl š
		Davyđ Johñ Hick	v markē
15		Tomkyñ Trevyssa	xj markē
16	{	Joñes Robt	iiij ti
		Wifms Rychard	xl š
		Vivian Borthalañ	iiij ti
		Wifms Bose	xl š
15		Thomas Nycoł	vj ti
16		Joñes Symoñ	xl š
		Druco Pentreth Capelañ	x ti
13		Johñ Nowell	xx ti

[f. 12b]

Pochia de Ya adhuc

The Alyens w<sup>n</sup> in the seiđ pishe  
w<sup>t</sup> the value of theiř goodē

Joñes Brittoñ Taylor de sentt ya nať in ptib3 Britannie sub obedienč Rē Franco3 val3 in bonis	}	ij š
--	---	------

Petrus Trevuffe de ead̃ laborer valz	xx d̃	} nať in ptibz Britan- nie sub obedi- enť Rege Fran- coz
Homañ Brittoñ de ead̃ laborer	ij s̃	
Henř Brittoñ de ead̃ Fysher	iiij s̃	
Joñes Wyllm de ead̃ tayler	iiij s̃ iiiij d̃	
Joñes Britton de ead̃ tailer	iiij s̃ iiiij d̃	
Bratrañ Barbo' de ead̃ laborer	ij s̃	
Willms Stephyñ de ead̃ smyth	v s̃	
Viviañ Brittoñ de ead̃ Fysher	iiij s̃ iiij d̃	
Alañ Thomas de ead̃ Fisher	x s̃	
Vdiñ Johñ Smyth	vj s̃ viij d̃	
Vdiñ Smyth de ead̃ Smyth	ij s̃	} pauperes
Vdiñ Tailer de ead̃m tailer		
Edwardus Enberyñ de ead̃m laborer		
Thomas Brettoñ de ead̃m Fisher		
Willms Brettoñ de ead̃m Fisher		
Vdiñ Brettoñ de ead̃m Fisher		
Thomas Brettoñ de ead̃m laborer	ij s̃	
Martiñ Brettoñ de ead̃m fisher		
Joñes Joce Bretton de ead̃m fisher		
Franciscus Enhane de ead̃m laborer		
Willms Treranye de ead̃m laborer		} pauperes
Silvest̃ Johñ de ead̃n Fisher		

[f. 13]  
Pochia  
de  
Erghe

3	Joñes Elmouthe C̃licus vicari⁹ ecclie pochis iñm valet in dicimis oblacionibz obvēc̃ ⁊ alijs emolu- mēt iñm p̃ anñ eiñm vicař p̃t	} viij ti
	Decan⁹ ⁊ cap̃t dom⁹ et ecclie s̃ci Petri Exoñ pp¹ etarij Rectorie ecclie pochis iñm valet in decimis obvēc̃ ⁊ alijs emolumēt iñm p̃ anñ eiñm Rectorie spectantibz	

The value of the lande  
w<sup>in</sup> the seid pishe by the yere.

10	Roğidus Mohune valz in t̃re ⁊ teñ iñm p̃ anñ	} x ti
12	{ Willms Chynale Willms Lanyene	
10	Dñs de Hastynge	xiiij ti vj s̃ viij d̃
11	Joñes Reskym	C s̃



	Thomas Dogowe Clicus	xv s̃
	Joñes Bodreverañ	x s̃
	Jacobz Caskes	xx s̃
	Heñ Gurlyñ	iiij li
	Heñ Rosmoddras	xx s̃ viij d̃
12	Wiflms Trefronek	xxxiiij s̃ iiij d̃
	Michael Chynow <sup>t</sup>	xxvj s̃ viij d̃
	Heñ Trewyffe	xx s̃
	Wiflms Trenuddrys	xxvj s̃ viij d̃
	Wiflms Trevyssa	x s̃
	Henric Comes Wylshere	xx s̃
11	Jacobz Trewynnard	x markē
12	Joñes Tyrdree	xl s̃
	Wiflms Tremelyñ	xx s̃

[f. 13b]

Pochia Erghe adhuc.

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>t</sup>in the seid pishe & their harnes.

13	Jacobz Trewynnard valz in bonis	xl li
15	Wiflms Treveffa	x markē
16	Wiflms Tyar	xl s̃
15	Wiflms Tomkyñ	x markē
16	Joñes Tomkyñ	xl s̃
14	Joñes Tyrdree	xx markē
16	Petrus Ewyñ	iiij li
13	Robtus Rawe	xx li
14	{ Joñes Thomas Riçus fit eius	} xij li
13	Wiflms Thomas	xx li
16	Wiflms Chynals	iiij li
15	Joñes Edmond	x markē
16	{ Marow Harry Wiflms Legha	} iiij li xl s̃
14	Joñes Will <sup>m</sup>	xx markē
15	{ Joñes P <sup>o</sup> <sup>a</sup> Thomas Ote	} v li vj li
16	{ Joñes Tomkyñ Riçus Bosshabetthu Wiflms Trembagh	} xl s̃ iiij li
	Wiflms Davye	v li
	Thomas Jamys	x markē
	Thomas Trembagh	C s̃
	Riçus Chynow <sup>t</sup>	C s̃
	Jacobz Chynow <sup>t</sup>	C s̃
	Martin Will <sup>m</sup> Vighañ	ix li

16	Martyñ Johñ Rawe	iiij li
14	Thomas Geffra	x li

[f. 14]

Erghe adhuc  
The value of the goodē

16	Thom's Johñ Vighañ valz in bonis	xl š
13	Wifms Trenudrys	xx li
16	Jacobz Johñ Vighañ	xl š
15	Wifms Tremelyñ	vij li
17	Joñes Geffre Capellañ	vij li

The Aliens w<sup>in</sup> the seid pishe.

16	Petrus Brittoñ de Ergñ tynn	paup	} nañ in ptibz Britanie sub obediēcia Rege Francoz
	Wifms Brittoñ de Ergñ tayler valz in bonis	xiiij s̄ iiij d̄	
	Wifms Brittoñ de eađ tynn	ij s̄	
	Wifms Johñ de eađ laborer	xij d̄	
	Alañ Brittoñ de eađ tynn	ij s̄	
	Artur Brittoñ de eađ tynn	} paup	
	Joñes Brittoñ de eađ laborer		

[f. 14b]

Pochia  
de  
Perañ  
Vthno

Wifms Michell Cticus Rector	} vj li
ecclie pochis iñm valz in decimis	
oblañ obvēč ʔ alijs emolumēte	
iñm p aññ eiđ Rcorie ptiñ	
Iñm Wifms valet in bonis	C š

The value of the landē w<sup>in</sup>  
the seid pishe by the yere.

9	Joñes Trevelyiañ valz in terre ʔ teñ	} xxij li xij š
	iñm p aññ	
12	Thomas Chywartoñ	xxx š
	Joñes Kelwa	xvj š
	Heređ Trevighañ	xx š

The value of the goodē of thenhit<sup>ante</sup>  
w<sup>in</sup> the seid pishe ʔ their harnes.

16	Robtus Tuowe valz in bonis	xl š
	Hockyñ Enowre	xl š
	Robtus Engove	iiij markē
	Joñes Calmadye	xl š
	Hoskyñ Payne	iiij li
	Joñes Thomā	iiij markē
	Joñes Jenkyñ	iiij markē
	Simon Treleñ	} iiij li
	Joñes Pere	
15	Joñes Gyllard	C š

16	Witlms Stephyñ	xl s
	Thom <sup>s</sup> Stephyñ	iiij markē
	Michell Berowe	xl s
	Joñes Vighañ	xl s
	Joñes Thomas	iiij ti
	Thom <sup>s</sup> Hoskyñ	iiij ti
	Joñes Will <sup>m</sup>	xl s
	Witlms Johñ Herry	xl s

[f. 15]

Pochia  
de  
Hillarie

Abbatissa ⁊ consorores dom <sup>o</sup> ⁊ eccle s̄ci Salvatorē ⁊ s̄ce Brigitte pp <sup>t</sup> etarij Rectorie eccle pochis iñm valet iñm p anñ in decimis obvēč ⁊ alijs emolumētē eidm rectorie spectantibz	} xx markē
Robtus Bodye vicari <sup>i</sup> eccle pochis iñm valet iñm p anñ in decimis oblač obvēč ⁊ alijs emolumētē eidm vicarie ptiñ.	

The value of the landē w<sup>in</sup>  
the seið pishe by the yere.

11	Henricus Comes Wyleshere valz	} vij ti
	iñm p anñ in t <sup>r</sup> e ⁊ teñ	
	Joñes Reskymm <sup>i</sup>	x markē
10	Joñes Arundell Talfreñ	xiiij ti x s
12	Joñes Arūdeñ Tre rise	xx s
	Witlms Tremelyñ	xx s
	Ričus Treger	xxxvj s
	Nichus Oppye	xv s
	Joñes Trigian	v markē
	Hereð Rosnoddras	xxx s
	Thomas Tretherff	} xlj s iiij d
	Rogidus Tretherff	
	Thomas Penwerñ	} vij s
	Jacobz Clerk	
	Ričus Cortney	iiij ti iiij s
	Agnes Lannargñ	xvj s
	Ričus Penros	v s iiij d
	Thomas Tregoos	xj s ix d
	Henricus Johñ Pascowe	xiiij s xj d
	Joñes Boscawēñ	xx s
	Heñ Riči Boscawēñ	xvj s
	Rogerus Elforth ⁊ Pollard	xiiij s xj d
	Jacobz Caskes	vj s viij d
	Thomas Glynne	xx s

[f. 15b]

Pochia Hyllary adhuc.

The value of the goodē of thenhit<sup>a</sup>ntē  
w<sup>t</sup>in the seið pishe ⁊ the harnes.

16	{ Riçus Rowlyñ valz in bonis	iiij li
	{ Jacobus Nicholl	iiij li
	{ Joñes Jamys	iiij li
13	{ Wiffms Tōma	xx li
	{ Wiffms fit	xx li
	{ Wiffms Jamys Thom <sup>s</sup>	iiij li
16	{ Riçus Jamys	iiij li
	{ Georgius fit ei <sup>9</sup>	iiij li
	{ Thoms Jack Tōma	xl s
15	{ Joñes Jenkyñ	vj li
	{ Joñes fit ei <sup>9</sup>	vj li
	{ Wiffms Trewatheñ	vj li
16	{ Joñes Boscaweñ	iiij markē
	{ Raðphus	iiij markē
14	Wiffms Baroñ	xxv markē
16	Riçus Baroñ	iiij li
14	Robtus Gylbertt	v li
16	{ Robtus Carbons	v markē
	{ Rogerus Engoffe	iiij li
15	{ Joñes Cleys	vj li
	{ Jacobz Cleys	vj li
13	{ Thomas Hycke	xl li
	{ Wiffms Richard	xl li
15	{ Joñes Hoskyñ	vj li
	{ Riçus fit ei <sup>9</sup>	vj li
	{ Raðphs Trewhyla	x markē
	{ Joñes fit ei <sup>9</sup>	x markē
14	{ Riçus Nicoll	x li
	{ Jacobz fit ei <sup>9</sup>	x li

[f. 16]

Hillarye adhuc.

The value of the goodē.

16	{ Jankyñ Engrove valz in bonis	iiij li
	{ Thomas fit ei <sup>9</sup>	iiij li
15	{ Riçus Tregem <sup>b</sup>	x markē
	{ Thomas Joheñ	x markē
	{ Petrus Richard	iiij markē
16	{ Robtus Retalek	iiij li
	{ Joñes Chefer	iiij li
	{ Riçus Wiffm	iiij li

15	Ričus Huchyñ	vij li
16	Steph̃us Bocher	xl s̃
15	Willms Martyñ	x mark̃e
26	Regidus Kelenowe	xl s̃
	Joñes Wolcoł m̃	xl s̃
	Simon Jankyñ	xl s̃
	Martiñ Benny	iiij mark̃e
	Jacobz Hoskyñ	} iiij li
	Joñes fił eius	
5	Robtus Bodye cłicus vič iłm	xx li

Alieğ Nať in pť Britanie šb obedienč  
R̃e Franč.

16	Rowland̃ Brittoñ de Hillarye	} ij s̃
	laborer valz in bonis	
	Petrus Mayhowe de eađm laborer	vj s̃ viij đ

[f. 16b] The value of the land̃e theř by the yere.

Villa 11	Henř Comes de Wyldshyre valz	} vj li
de	in terř 7 teñ iłm p anñ	
Mark- 10	Joñes Reskymm̃	xviiij li
esyowe	Thomas Polkynhorñ	xvij s̃
	Thomas Glynne	xl v s̃
	Hered̃ Mennowe	vj s̃ iiij đ
	Heř Jenkyñ Bevytt	iiij li
	Heř Gurlyñ	xx s̃
	Thom's George	iiij s̃
	Willms Wydeslade	xxxv s̃
	Joñes Arundell Treryse	x s̃
	Heř Viviañ	iiij li
	Ričus Adañ	v s̃
	Henricus Goudrye	vij s̃
	Thom's Tregoos	xiiij s̃ iiij đ
	Willms Clemowe	xxx s̃
12	Willms Brevanneł Capellañ	xxiiij s̃
	Willms Lowarñ	xij s̃
	Roger̃ Henry	ij s̃
	Joñes Venoa	vij s̃
	Baldewiñ Fabye	viiij s̃
	Heř Lannarghe	xxxij s̃
	Joñes Carmynowe	vj s̃ iiij đ
	Joñes Browne	xv s̃
	Willms P'ske	viiij s̃
	Joñes Karallał	xij s̃
	Heř Jenkyñ Felyppe	viiij s̃
	Joñes Wolcoł	viiij s̃
	Joñes Power	
	Willms Tremelyñ	xj s̃

[f. 17]

## Villa de Markesyowe adhuc.

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>t</sup>in the seið towne ⁊ their harnes.

16	Thom <sup>s</sup> Nyclys valz in bonis	xl s
15	{ Matheus Hoskyñ Henric <sup>⁹</sup> Hoskyñ	{ C s
14	{ Joñes Clyse Thom <sup>s</sup> Clyse Joñes Huchyñ	{ xxv markē
16	{ Robtus Coķ David Tyrell	{ iiij markē iiij li
13	Joñes Merse	xxx li
	Denis Germeñ	C s
15	{ Joñes Stykker Baldewin <sup>⁹</sup> Fabye Joñes Omffra	{ viij li x markē
14	Joñes Venon	xx markē
15	Jacobz Paynton	C s
16	Joñes Rauffe	xl s
13	{ Michael Chynow <sup>t</sup> Jacobz Chynow <sup>t</sup>	{ xl li
15	{ Jacke Jamys Joñes Enys	{ xl s xl s
16	Willems Clemowe	viiij li
16	Willems Hicke	xl s
14	Joñes Mylatoñ	xx markē

The Aliens w<sup>t</sup>in the seið Towne.

16	{ Petrus Britton de Markesiowe valz in boñ Joñes Wyll <sup>m</sup> de eaðm Tebowe Britton de eaðm laborer Elarye Britton de eaðm labor Gyon Britton de eað Fysher	{ ij s ij s ij s ij s	{ Nañ in ptm Britanie sb obienč Regis Franc
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[f. 17b]

Pochia  
de  
Gulvañ

	{ Joñes Harrys Clicus in decrete baculañ vicari <sup>⁹</sup> ecclie pochis iðm valz p anñ in decimis oblač obvēc ⁊ alijs emolumēte eiðm vicarie spect	{ viij markē
2	{ P <sup>or</sup> ⁊ cōvent <sup>⁹</sup> de Sentt Germañ pp <sup>etañ</sup> Rectorie ecclie pochis iðm valz p anñ in decimis obvēc ⁊ alijs emolumēte eiðm Rectorie ptinēt.	{ xij li

The value of the lande w<sup>in</sup>  
the seid<sup>t</sup> pishe by the yere.

11	{ Heř Stawell valet in terre ʔ teñ iðm p anñ }	viiij li vij s viij d
	{ Thomas Plemayne	iiij li iiij s
	{ Riçus Pendree	xlviij s iiij d
	{ Thomas Tretherff	xxiiij s iiij d
	{ Joñes Power	x s viij d
	{ Thomas Johñ Nicott	ij s
	{ Heř Tregooos	iiij li xij s
	{ Joñes Treneř	xxvj s
	{ Hugo Trevanyoñ	xlj s viij d
	{ Joñes Arundell Trerise	xlj s
12	{ Heř Tredynye	xij s
	{ Joñes Trewrythall	xix s
	{ Michell Chynow <sup>t</sup>	xvj s
	{ Jacobz Eresye	xiiij s
	{ Heř Kyllygrewewe	xlj s viij d
	{ Heř Breveañ	xxix s iiij d
	{ Joñes Harrye Vettye	} xj s
	{ Stephus Poolye	
	{ Thomas Trenowrañ	x s
	{ Wiffms Lanyeñ	x s xj d
	{ Riçus Ledax	xj s viij d

[f. 18]

Gulvañ adhuc.

The value of the lande.

12	{ Joñes Milatoñ valz in terr ʔ teñ iðm p anñ }	iiij s iiij d
	{ Thomas Enheyř ʔ Joñes Harcrañ	xix s vj d
11	{ Nichus Kenegye	Cvij s viij d
	{ Joñes Talvarge	v s
	{ Keř Hals	vij s
12	{ Heř Bosvyne	xj s
	{ Joñes Trygyañ	xx s
	{ Jacobz Twynnard ʔ Nichus Kenyege }	vj s viij d

The value of the goode of thenhit<sup>te</sup>  
w<sup>in</sup> the same pishe ʔ their harnes.

16	{ Thomas Hop Valz in bonis	xl s
	{ Henric <sup>o</sup> Johñ	iiij li
	{ Jacobz Richard	iiij marke
14	{ Riçus Pendree	xx marke

16	{	Joñes Gylbertt	}	iiij li
		Joñes Gylbertt		
		Jenkyñ Johñ Hoskyñ	}	iiij li
		Robtus Tooker		iiij li
		Henricus Symoñ		iiij li
		Ričus Perowe		iiij li
		Joñes Jack Hycke		iiij li
15	{	Ričus Jamys	}	C s̃
		Jacobz Johñ		C s̃
		Wittms Clemowe	}	vij li
		Ričus Clemowe		
16	{	Wittms Trerythall	}	xv s̃
		Jenkyñ Jamys		xl s̃
14	{	Jenkyñ Werñ	}	x li
		Johñ Werñ		

[f. 18b]

Gulvañ adhuc

## The value of the goodē

16	Thomas Laurence valz in bonis	iiij li
15	Pascasi <sup>9</sup> Johñ	vj s̃
16	{ Riçus Noye	xl s̃
	{ Joñes Omffree	xl s̃
	{ Joñes Hawys	xl s̃
	{ Joñes Symoñ	xlvj s̃ viij d̃
13	Nichus Kenegye	xx li
15	Riçus Wolcoł	vj li
16	{ Wittms Hycke	iiij li
	{ Joñes Gregor	iiij li
15	Thomas Plemayne	C s̃
16	Riçus Martyñ	v markē
6	Wittms Brevanneł Capellan )	xx markē

The Aliens w<sup>t</sup>in the seið pishe.

16	{	Joñes Frank de Gulvañ laborer	}	x s̃	}	Nañ in ptibz Britānie sub obedienc̃ Reğ Franc̃
		valz in bonis				
		Gyoñ Brettoñ de ead̃m laboreri	ij s̃ iiij d̃			



[f. 19]

Pochia de Ludvañ	1	{ Joñes Carvanett Clicus in dec <sup>te</sup> baculañ Rector ecclie pochis iñm valz in decimis oblañ obvēč 7 alijs emolumētē p añ	xx li
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The value of the landē w<sup>in</sup> the  
seid<sup>e</sup> pishe by the yere.

9	{ Henric <sup>o</sup> Comes Wyldsheñ valz in tre 7 teñ iñm p añ	xxiiij li v s iiij d
11	Heñ Broughtoñ	vj li xiiij s iiij d
10	Katina Dña de Brooke	xiiij li
	{ Hereñ Gurlyñ	iiij li
	Heñ Vyvyañ	iiij li iiij s iiij d
	Joñes Payne	xliij s
	Rogerus Arundett	iiij li xv s
	Hereñ Trembrace	xx s
	Heñ Poyle	xiiij s iiij d
	Joñes Gotholghañ de Moushole	xv s
	Hereñ Stawett	xiiij s
12	{ Joñes Arundett Talfreñ	xv s
	Nichus Kenegye	xij s
	Thomas Boswarthogga	xiiij s iiij d
	Jacobz Trewynnard	xxv s
	Joñes Tyar	v s iiij d
	Joñes Tomlyñ Capellan <sup>o</sup>	xxxij s
	Ričus Penroos	xxviiij s
	Alicia T <sup>o</sup> worgye	xv s
	Michett Chynow <sup>t</sup>	xv s iiij d
	Witlms Tregenha	xxviiij s

[f. 19b]

Pochia de Ludvañ adhuc.

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>in</sup> the seid<sup>e</sup> pyshe 7 theiñ harnes.

16	{ Cornelius Hop Thomas Alañ	{ valz in bonis	iiij li
14	{ Witlms Davye Witlms Harrye		x li
16	Joñes Thomās		xl s

15	Ričus Symoñ	x markē
16	Ričus Walfyñ	xl š
15	Joñes Botyssava	x markē
15	Wittms Scadañ	} viij ĥi
	Ričus Scadañ	
	Ričus Treova	
	Joñes Laurēce	
16	Ričus Chylewe	xl š
13	Wittms Tregonna	C markē
15	Thomas Johañ	} vj ĥi
	Joñes Tonowe	
16	Joñes Trockyar	xl š
	Joñes Stephyñ	xl š
	Thomas Hicka	} C š
	Thomas fit eius	
	Teke Yryshe	x markē
15	Joñes Jack	} vij ĥi
	Wittms Jak	
	Thom <sup>s</sup> Ammell	} vj ĥi
	Thom <sup>s</sup> Ammell mñ	
	Joñes Polgreeñ	
16	Jacob; Martyñ	} iiij ĥi
	Thomas Hoskyñ	
15	Wittms Symoñ	C š

[f. 20]

Ludvañ adhuc.

The value of the goodē ut sup<sup>a</sup>.

15	Ričus Jenkyñ	} valēt in bonis	C š
	Joñes Richard		
15	Joñes Symoñ	} x markē	
	Joñes Symoñ mñ		
	Ričus Symoñ		
15	Nichus Bodrygye	} x ĥi	
	Thom <sup>s</sup> Vyde		
15	Henricus fit ei <sup>9</sup>	} x ĥi	
	Thomas Scovarñ		
	Wattye fit ei <sup>9</sup>		
16	Thomas Melender	v markē	
	Thomas Velynnow <sup>t</sup>	v markē	
9	Thomas T <sup>w</sup> crowe Capellan <sup>9</sup>	iiij ĥi	

Aliens w<sup>h</sup>in the seið pishe.

16	{	Joñes Brittoñ de Ludvañ laborer	} iiij s̄ iiij d̄	}	Nañ in ptibz Britanie s̄b obediēc̄ Regē Francoz
		valz in bonis			
		Thom <sup>s</sup> Brittoñ de eaðm laborer			
		Olver Brittoñ de eaðm	xij d̄		

[f. 20b]

Pochia  
de  
Maddroñ

2	{	P <sup>l</sup> or ⁊ cōfratres dom <sup>9</sup> ⁊ ecclie s̄ci Joñis Bap <sup>te</sup> iuxta Smythfilde pp <sup>l</sup> etariē Rectorie ecclie pochis iðm valēt p̄ anñ in decimis obvēc̄ ⁊ alijs emolumētē eiðm rectorie spect̄	} xvij li
1	{	Benedict̄ Tregoos C <sup>l</sup> icus in dec <sup>te</sup> bacularius vicari <sup>9</sup> ecclie pochis iðm valz in decimis oblaç obvēc̄ ⁊ alijs emolumētē p̄ anñ eiðm vicarie ptiñ	} xxx li

The value of the landē w<sup>h</sup>in  
the seið pishe by the yere.

In manu dñi Regē	{	* Dñs Mañlij de Alwartoñ valz in	} xiiij li xij d̄
		tre ⁊ teñ p̄ anñ	
12	{	Thoma Levelys	xlvi s̄ viij d̄
		Joñes Wyllañ	vj s̄
		Stepñus Engaye	vj s̄
		Thom <sup>s</sup> Glynne	xxiiij s̄ iiij d̄
		Heñ Boscarnañ	xvj s̄
		Thomas Tretherff	xxxvj s̄
		Joñes Nanscothañ	xxviij s̄
		Alexander Kylygrewe	xlij s̄
		Simoñ Lamanva	iiij s̄
		Joñes Trefrye m̄	xxx s̄
		Willms Cowlyñ	xxiiij s̄ viij d̄
		Willms Lanyene	Cxj s̄ viij d̄

\* Sic—pen struck through the entry and note on margin.

12 {	Joñes Penpons	iiij li xix s viij d
	Agnes Lannargh	x s
	Wifms Carnsvyowe	xxvj s viij d
	Henricus Trembaghe	viiij s
	Radphus Trelyñ	xviiij s
	Joñes Arundell Talfreñ	iiij s
	Joñes Treloodeves	xvij s

[f. 21]

Maddroñ adhuc.

The value of the lande ut sup<sup>a</sup>.

12 {	Joñes Bosothnowe valz in tre t	} xvij s
	teñ iñm p añ	
	Thomas Tresculard	vj s
	Joñes Payne	xx s
	Thomas Plemayne	xx s
	Joñes Bevytt	xx s
	Joñes Treneñ	lj s
	Rogldus Mohuñ	xiiij s iiij d
	Thomas Trevryñ	xiiij s
	Ričus Penroos	xj s viij d
	Heñ Coplestoñ	vj s viij d
	Heñ Gurlyñ	vij s
	Joñes Broncois	ij s
	Nichus Kenegy	xxiiij s
	Ričus Boneythoñ	xxij s
	Joñes Trefrye	x s iiij d
	Joñes Trypconye	} xvj s
	Joñes Reg <sup>h</sup> ñs	
	Edwardus Chychester	vij s x d
	Joñes Tynn	iiij s iiij d
	Jacobz Eyrsye Joñes Pollard	} xij s
	Joñes Tregunstñs	
	Alicia Treurgye	xvj s
	Wifms Treronek	xxxiiij s
	Lucas Steda	iiij s iiij d
	Heres Bree	iiij s iiij d
	Joñes Reskym	xiiij s iiij d
	Wifms Clēmowe	v s
	Joñes Cuswyñ	xiiij s iiij d
Villa de Pensans	Robtus Bronwyñge	vj s
	Joñes Robyñ	v s

[f. 21b]

Pochia de Maddroñ.

The value of the lande  
w<sup>t</sup>in the seið pishe t̃c.

Villa de Pensans adhuc	{ Joñes Payne valz in terre t̃ teñ p }		xj s̃
	añ iðm		
	Joñes Trewrye		x s̃
	Rogerus Elforde		viiij s̃
	Joñes Nanscothañ		ij s̃
	Michael		ix s̃
	Joñes Dynghañ		iiij ti
	Willms Richard		iiij s̃
12	Jenkyn Engoffe		iiij s̃
	Stephus Gonwyñ		ix s̃
	Joñes Treneñ		vj s̃
	Heres Lamāva		iiij s̃
	Henric Botyssava		xij s̃
	Robtus Jacke Veñy		iiij s̃
	Jacobus Trewynar		vj s̃
	Joñes Eda		iiij s̃
	Thom <sup>s</sup> Boswarthogga		xj s̃

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>t</sup>in the seið pishe t̃ theiř harnes.

5	{ Benedictiñ T <sup>g</sup> oos in decretē }		C ti
	baculañ in bonis		
15	{ Edwardus Portyre }		
	Jenkyñ Clemowe	valz in bonis	C s̃
16	Joñes Masoñ		iiij ti
15	Willms Petyr		C s̃
16	Bernardus Michell		xl s̃
15	Joñes Jack		C s̃

[f. 22]

Maddroñ adhuc.

The value of the goodē ut antea.

15	Joñes Mulvra valz in bonis	vij ti
16	{ Edwardus Boskenwyñ	iiij ti
	{ Joñes Bone	iiij ti
15	{ Simoñ Penmeneth	} vj ti
	{ Joñes Pemeneth	
16	Jenkyñ Engoffe	iiij ti
15	Herveus Mothak	C s̃

14	Robtus Chynale	x li
16	{ Thomas Tregydyth	iiij li
	{ Martin <sup>9</sup> Coke	iiij li
15	Willems Noye	C s
16	Radphs Jack Davye	iiij li
15	{ Joñes Noble	{ C s
	{ Riçus Johñ	{ C s
	{ Joñes Trefrye m <sup>l</sup>	{ C s
16	{ Riçus Jenkyñ	{ iiij li
	{ Henricus Saundrye	{ iiij li
	{ Joñes Wolcoth	{ iiij li
15	{ Joñes Jamys	{ C s
	{ Joñes Rawe	{ C s
16	{ Jenkyñ Geyñ	{ xl s
	{ Willems Thomkyñ	{ iiij li
	{ Michell Henry	{ iiij li
	{ Robtus Johñ Rawe	{ iiij li
	{ Willems Johñ Rawe	{ iiij li
	{ Joñes Davye Hoskyñ	{ xl s
	{ Joñes Cufañ	{ xl s
	{ Joñes Trembaghe	{ iiij li
15	{ Joñes Richard Goffe	{ C s
	{ Pascasi <sup>9</sup> Davye	{ x mark
	{ Riçus Pascowe	{ x mark
16	{ Joñes Trenere	{ iiij li
	{ Joñes Tremetha	{ xl s
9	Joñes Trelogas Cap <sup>l</sup> n <sup>9</sup>	xl s
7	Willems Ames Cap <sup>l</sup> n <sup>9</sup>	C s

[f. 22b]

Pochia de Maddroñ adhuc.

The value of the good<sup>e</sup> t<sup>c</sup> ut antea.

16	{ Moricius Jack Laurens valz in bonis	xl s
	{ Henricus Wyllañ	iiij li
	{ Willems Nicoll	{ iiij li
	{ Riçus Wyllam	{ iiij li
	{ Henricus Martyñ	{ xl s
15	{ Henricus Johñ Henry	{ viij li
	{ Willems Bosvarwhyñ	{ C s

16	{	Joñes Denys	iiij li
		Robtus Fyñ	iiij li
15		Edwardus Cowēnawe	C s
	{	Joñes Stephyñ	iiij li
		Joñes Rychard	xl s
16	{	Joñes Hockyñ	xl s
		Thomas Holla	iiij li
		Benedict Johñ	paup
9	{	The Store of Sentt Maddroñ	iiij li
		The Store of Sentt Brigitt	v marke

Aliens w<sup>in</sup> the seið pishe.

16	{	Petrus Brittoñ de Maddroñ pishe	xl d	} Nañ in ptibz Britanie sub obedienc Rege Francoz
		valz in bonis		
		Stephus Brittoñ de eaðm laborer	paup	
		Joñes Franke de eaðm laborer	vj s viij d	
		Clement Brittoñ de eaðm laborer	iiij s viij d	

[f. 23]

Maddroñ pishe adhuc.

The value of the gooder of thenhit<sup>nt</sup>e w<sup>in</sup>  
the seið towne t<sup>r</sup> their harnes.

Villa	15	Jacob <sup>e</sup> Beauch <sup>mpe</sup> valz in bonis	x marke
de		Petrus Engoffe	iiij li
Pensans		Joñes Trefrye	iiij li
		Laurenci <sup>n</sup> Rychard	iiij marke
	16	Robtus Martyñ	xl s
		Ričus Drewe	iiij li
		Ričus Rawe Alwerñ	xl s
		Ričus Robt	xl s
	13	Robtus Harry	xx li
		Joñes Richard	iiij marke
	16	Thomas Engoffe	xl s
		Joñes Carpenter	xl s
	14	Stephus Gymbañ	xx marke
	13	Thomas Martyñ Robt	xx li
	16	Joñes Martyñ	xl s
	14	Joñes Cristowe	x li
	13	Joñes Chynale	xx li
	16	{ Jenkyñ Johñ Hyc <sup>k</sup>	iiij li
		Herveus Gothañ	iiij li
	13	Robtus Brownynge	xxv li

16	Joñes Champioñ	iiij li
13	Willms Goodale	xl marke
16	Joñes Amys	iiij li
15	Thomas Johñ Martyñ	viiij li
16	{ Willms Grytt	iiij li
	{ Joñes Davye	xl s̃
15	Ričus Bodbery	C s̃
16	{ Madderñ Cosyñ	iiij li
	{ Thomas Carankyñ	xl s̃
13	Joñes Harry Nycott	xx li
16	{ Thomas Laurens	iiij li
	{ Martin <sup>y</sup> Davye Johñ	iiij li

[f. 23b]

Maddroñ pyshe adhuc.

The value of the goodē t̃c ut infra.

Villa	16	Donelus Yryshe valz in bonis	xl s̃
de	14	Ričus Jack Alchyñ	xx marke
Pēsans	16	{ Robtus Holla	xl s̃
adhuc		{ Morici <sup>y</sup> Water	xl s̃
	15	{ Ričus Vyviañ	x marke
		{ Jenkyñ Laurye	} C s̃
		{ Bernardus Laurye	

Aliens w<sup>t</sup>in the seið towne.

16	{	Edmond <sup>y</sup> Britoñ de Pensans	}	xiiij s̃ iiiij d̃	} Nañ in ptibz Brita- nie s̃b Rege Fran- coz obedi- encia	
		laborer valz in bonis				
		Petrus Brittoñ de eaðm laborer				xij d̃
		Joñes Bygott de eaðm laborer				xij d̃
		Henric <sup>y</sup> Brittoñ de eaðm laborer				xij d̃
		Joñes Calamaye de eaðm laborer				xij d̃
		Petrus Gymball				xij d̃
		Willms Belleñ				ij s̃
		Henricus Brittoñ				xij d̃
		Joñes Rop				vj s̃ viij d̃
		Lodewicus Brittoñ				ij s̃
		Willms Brittoñ				ij s̃
Ričus Brittoñ Smythe	ij s̃					
Vincenci <sup>y</sup> Brittoñ laborer	ij s̃					
Joñes Brittoñ laborer	ij s̃					



[f. 24]

Pochia  
de  
Yuste

1 { Ppōitus ⁊ Canonici dom⁹ ⁊ ecclie  
s̄ci Thome Martir⁹ de Glasnaye  
ppietary Rectorie ecclie pochis iḃm  
⁊ Rectorie ecclie pochis de Senar  
valent p anñ in decimis obvēč ⁊  
alijs emolumēt⁹ eisḃm Rectorijs  
spectant

2 { Benedictus Tregoos in dec⁹  
baculari⁹ vicari⁹ ecclie pochis iḃm  
valz p anñ in decimis oblač obvēč  
⁊ alijs emolumēt⁹ eaḃm vicarie  
ptinētibz

The value of the land⁹ by the  
yeṛ wᵀin the pishe.

10 { Joḃes Fitzwaryñ Miles dñs  
Fitzwaryñ valet in terr⁹ ⁊ teñ  
iḃm p anñ } xj li xvj š vj ḁ

12 { Heres Tregoos iij li xij š  
Joḃes Kylygrewe xxxij š  
Jacobz Eresy xij š  
Ric⁹ Hals viij š  
Joḃes Arundell Talfreñ xxj š  
Thomas Glynne xxxviiij š  
Joḃes Bree ix š ij ḁ  
Joḃes Treonek x š  
Witlms Gryll xiiij š iiij ḁ  
Thomas Noye vj š  
Joḃes Maryce x š  
Joḃes Bevyll xvj š  
Joḃes Donkyñ viij š vj ḁ  
Joḃes Nanselyñ xij š  
Thom⁹s Tregoos xv š  
Joḃes Nanguynyowe vij š  
Xpus Tredenek xiiij š  
Thomas Bele x š viij ḁ

[f. 24b]

Pochia de Yuste adhuc.

The value of the lande t̃c ut antea.

	Heř Coplestoñ valz in terř t̃c teñ	} viij s̃
	iðm p anñ	
	Nichus Oppye	xij s̃
	Ričus Welper	vij s̃
	Thomas Seyntaubyñ	vj s̃
	Nichus Kenegye	v s̃
	Jacobz Luke	xx s̃
	Joñes Boscawen	v s̃
	Henric <sup>9</sup> Vos	vij s̃ ix d̃
	Willems Godolghañ	iiij s̃
	Joñes Burwyke	xvj s̃
	Joñes Jamys	iiij s̃
	Hugo Trevanyoñ	xix s̃
12	Heř Malyuy <sup>9</sup>	} xij s̃ iij d̃
	Robtus Vyvyañ	
	Joñes Ammat̃ [or Aumat̃]	x s̃
	Heř Pollard̃	v s̃ viij d̃
	Heř Trewyffe	v s̃ viij d̃
	Thomas Furgañ	xvij s̃
	Joñes Thomas Sargant̃	xl s̃
	Rađphus Nans	iiij s̃
	Rogerus Arundett̃	ij s̃
	Thomas Jack Wytt̃	vj s̃ viij d̃
	Joñes Kyrrys	xvj s̃
	Thomas Trevryñ	xv s̃
	Benedictus Michett̃	x s̃
	Ričus Karane	xij s̃

[f. 25]

Yust adhuc.

The value of the goodē of thenhit̃ntē  
w<sup>t</sup>in the same pishe t̃c their harnes.

13	Ričus Carallaḱ valz in bonis	xx li
14	Martin <sup>9</sup> Pendree	} xx marke
	Joñes Richard̃	
	Joñes Thomas Jenkyñ	} x li
	Ričus Wyll <sup>m</sup>	
16	Joceus Lucott	xl s̃
15	Phelippus Robyñ	C s̃
14	Thomas Carallaḱ	x li

16	{ Matheus Jamys	} iiij li	.
	{ Joñes Davye		
	{ Joñes Nansquynowe	ix li	
15	{ Jacobz Lethoñ	} C s	
	{ Joceus Jamys		
16	Joñes Melender	iiij li	
14	Bastian <sup>o</sup> Rawe	xij li	
16	Joñes Adañ	iiij li	
15	{ Henric <sup>o</sup> Paule	} Cxx s	
	{ Willems Harrye		
•	{ Thomas Phelippe	iiij li	
16	{ Joñes Harry Vartyñ	iiij li	
	{ Henric <sup>o</sup> Huchyñ	xl s	
15	Nichus Thomas	viiij markē	
16	Pascasius Nanselyñ	iiij li	
14	Jacobz Richard <sup>o</sup>	xv li	
15	{ Henric <sup>o</sup> Edward <sup>o</sup>	Cxx s	
	{ Riçus Johñ	C s	
16	Joñes Rescōmañ	iiij markē	
15	Henric <sup>o</sup> Thomas	Cxx s	
	{ Jenkyñ Sewynowe	iiij li	
16	{ Riçus Jamys Jack Martyñ	iiij li	
	{ Joñes Henr Robnett	iiij li	

[f. 25b]

Pochia dē Yuste adhuc.

The value of the goodē tē ut infra.

15	Riçus Jamys valet in bonis	C s
16	Thomas Rawe	xl s
14	Hycka Lethoñ	xx markē
16	Rogerus Treher	xl s
15	{ Joñes Jamys Lethoñ	vij li
	{ Joñes Nanselyñ	Cxx s

The Aliens w<sup>in</sup> the seið pishe.

Thomkyñ Brittoñ de Yust laborer	} v s	} Nañ in ptibz Britanie sb obediēcia Rege Francoz
valz in bonis		
Bertyñ Brittoñ de Bosaverñ laborer		
Willems Brittoñ de Yust Coke	xvj d paup	

[f. 26]

Pochia  
de  
SenañDecime oblaç obvēç ⁊c ecclie pochis iðm  
ptinet ecclie pochis de Beryañ racõe  
appendançThe value of the lande w<sup>in</sup> the  
seid poche by the yeŕ.

12	{	Heŕ Trevanyoñ valz iðm in tre ⁊	xx s
		teñ p anñ	
		Heŕ Wurthe	xxx s
		Heŕ Trefronek	xiiij s vj d
		Heŕ Henrici Gyllyott	xiiij s
		Heŕ Johñ Perç	v s x d
		Thomas Tregoos	xiiij s iiij d
		Thomas Glynne	xij s
		Joñes Penros	xxiiij s
		Heŕ Burwyk	ix s
		Thomas Boscarnañ	vj s viij d
		Heŕ Broughtoñ	ix s
		Heŕ Edmondi Arundeñ Milite	iiij li xvij s
		Thema Chywartoñ	vj s
		Thomas Wyll <sup>m</sup>	vij s vj d
		Heŕ Kenegye	vij s
		Heŕ Trevorryañ	v s
		Heŕ Trembaghe	vij s
		Heŕ Johñ Hoskyñ	viiij s
		Heŕ Cortes	iiij li
		Willms Cowlyñ	xiiij s iiij d
		Heŕ Joñis T <sup>v</sup> vylyañ Milite	xxxvj s

[f. 26b]

Pochia de Senañ adhuc.

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>in</sup> the seid pishe ⁊ their harnes.

14	Hockyñ Will <sup>m</sup> Robt valz in bonis	xx marke
15	Matheus Nicoll	C s
16	{ Riçus Engwariek	iiij li
	{ Riçus Reynold	xl s
14	Joñes Trewe	x li
16	{ Joñes Will <sup>m</sup> Harry	xl s
	{ Willms Phelippe	xlvi s viij d
	{ Henricus Trevorryañ	xl s
	{ Joñes Bauntt	iiij li
	Hicka Jamys	v marke

14	Joñes Penros	xx markę
16 {	Hugo Brewe	iiij li
	Hicka Skewecke	iiij li

The Aliens w<sup>in</sup> the seið pishe.

Henricus Brittoñ de Senañ laborer valz in bonis	} xx d	} Nañ in ptibz Britanie sub obedienç Rege Francoz
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[f. 27]  
Pochia  
de  
Selevañ

Decime oblaç tç ecclie pochis iðm ptinet  
t append<sup>t</sup> ecclie pochis de Beriañ

The value of the landę w<sup>in</sup> the  
seið pishe by the yere.

12 {	Heres P'ske valz in terr t teñ iðm p anñ	} xxx s
	Jacobz Erysye	xij s
	Heñ Joñis T'vylian Militę	xxix s
	Heñ Kegwyñ	vj s
	Heñ Gotholghañ	iiij s
	Joñes Marice	xij s
	Heñ Edmūdi Arundell Militę	xxij s
	Nichus Oppye	iiij s
	Heres T'yaghañ	iiij s
	Thom's Tregoos	xx s
	Thom's Spnañ	xxv s
	Willms T'vyssa	iiij s
	Joñes Robt	} viij s viij d
	Joñes Luk	
	Raðphus Tregee	xxvj s
	Heñ Colañ	xiiij s
	Joñes Hicka	xvij s ix d
	Heñ Riçi Viviañ	iiij li
	Joñes Hoskyñ	xxvj s
	Joñes Arundell Talfren m <sup>o</sup>	xxxij s
	Heñ Lamargñ	xxiiij s iiij d
	Stepñus Roswañ	iiij s
	Pascasius Joñ Thomas	vj s
	Joñes Cuswyñ	xij s
	Joñes Penros	v s
	Heñ Furgañ	xvj s
	Willms Bosustowe	xxvj s viij d

[f. 27b]

## Pochia de Selevañ adhuc.

12	{	Katerina dñna de Broke valz in t're	}	vij s
		t teñ iðm p anñ		
		Heres Pomlaye		iiij s
		Ričus Boneythyñ		vij s viij d
		Heñ Devryañ		v s
		Heñ Isabell Trewoyffe		iiij s
		Thomas Levelys		viiij s

The value of the goode of thenhitante  
w<sup>n</sup> in the seid pishe t their harnes.

16	{	Thomas Wyll <sup>m</sup> Jack valz in bonis	}	xl s
		Thomas Thomkyñ		iiij markē
15		Nichus Colk		C s
16		Hugo Johñ Davye		xl s
15		Wittms Richard		vij ti
16	{	Joñes Will <sup>m</sup> Joos	}	iiij ti
		Jenkyñ Deffreñ		iiij ti
		Wittms Huchyñ		iiij ti
		Jacobz Huchyñ		iiij ti
		Benedict Jamys		xl s
15		Hugo Ambroos		C s
16	{	Thomas Colk	}	iiij ti
		Jacobz Thom <sup>s</sup> Tōma		v markē
		Wittms Richard		iiij ti
		Pascasius Richard		iiij ti
		Matheus Trengothañ		iiij ti
		Joñes Will <sup>m</sup> Rowlyñ		iiij markē
15		Wittms Alsa Capellan		C s

## Aliens.

16	{	Joñes Pyper de Selevañ valz in bonis	}	iiij s iiij d
		Joñes Yaghañ de ead <sup>m</sup>		iiij s iiij d
		Joñes Brittoñ de ead <sup>m</sup>		xx d

[f. 28]

Pochia  
de  
Beriañ

1	{	Joñes Ryse Clīcus Decan <sup>o</sup> eccīe	}	xl ti
		pochis iðm t eccīaz pñōiañ de		
		Senan t Selevan Capellaž		
		appendenč pñict eccīe de Beryañ		
		valz p anñ in decimis oblač obvēc		
		terre t teñ ac alijs emolumēte		
		eidm decanañ spectant		

3	{	Joñes Ryse Cñicus Rector ecclie	}	v marke
		pochis de Loo vn' p̄bendari'		
		ecclie pochis de Beryañ valet iñm p anñ in decimis obvēc t alijs emolumēte eidm p̄bendañ ptinēt		
3	{	Joñes W <sup>r</sup> thyngtoñ doctor vt <sup>usq</sup>	}	xx s
		jure alius p̄bendari' iñm valet p anñ in decimis tñ p̄bende sue ptiñ		
	{	Wifms Redway Cñicus terci'	}	v marke
		p̄bendañ iñm valet p anñ in decimis obvēc tñ sue p̄bende ptinent		

The value of the lande w<sup>in</sup> the seid  
pishe by the yeñ.

12	{	Joñes T <sup>v</sup> yliañ valz in tñ t teñ	}	iij li vj s
		iñm p anñ		
		Joñes Boscawēñ		
		Hugo Trevanyoñ		
		Joñes Boscawēñ Roos		
		Stephus Polwhyle		
		Wifms Treronek		
		Heñ Penkevatt		
		Thom <sup>s</sup> Levelys		
		Joñes Laurence Boscawēñ		
11		Heñ Rosmoddras		vij li vj s iij d
12	{	Joñes Kyllowe	}	viij s
		Heñ Malyuy		

[f. 28b]

Pochia de Beriañ adhuc.

The value of the goode tñ.

	{	Wifms Gotholghañ valz in tñ t	}	iij li xvj s vj d
		teñ iñm p anñ		
		Joñes Treronek		
		Johna Treruffe		
		Joñes Jack Jenkyñ		
		Jenkyñ John Pascowe		
		Heñ Olyv Wyse		
		Heñ Riçi Viviañ		
		Joñes Arundell T <sup>r</sup> ise		
		Radphus Bolfrankeñ		
		Henric Treonek de sentt Alyñ		v s

12	Joñes Bevyñ	xlj s
	Joñes Tomlyñ	ix s ij d
	Edwardus Crockear	vij s
	Nichus Kenegye	xxij d
	Nichus Oppye	ij s vj d
	Ričus Bonythoñ	xij s
	Joñes Marice	xij s
	Radphus Nance	xxij d
	Heñ Dewyñ	xxij d
	Joñes Roswarñ	xvij s
	Joñes Arundell Talfreñ	xix s
	Wifms Jamys	ij s
	Jacobz Caskes	xxiiij s vj d
	Heñ Jenkyñ Bevyñ	xvj s
	Thomas Spnañ	xx s
	Jenkyñ Tyrlodeves	xlj s
	Wifms Tregenna	xl s
	Joñes Pentyre	ix s vj d
	Wifms Trewynnard	ij s ij d
	Thomas Seyntaubyñ	ij s
	Robtus Brownynge	vj s
	Joñes Jamys	ij s ij d
	Heñ Gurlyñ	iiij s

[f. 29]

Beryañ adhuc.

The value of the lande tñ.

12	Joñes Penros valz in terre tñ teñ	iiij s
	ibm panñ	
	Joñes Thomas	ij s
	Joñes Bassett Miles	ij li xvij s x d
	Stephus Roswall	iiij s
	Abbatissa de Syoñ	xxij s j d
	Heñ Gorrañ	ij s iiij d
	Terra Mahlij de Alwertoñ	ij li x s iiij d

The value of the goodē of thenhitñte  
wñ in the seid pishe tñ the harnes.

2	Joñes Jamy Capellan	valz in bonis xvij li xij s iii d
16	Wifms Sogeawe	xlvi s viij d
13	Alexander Richard	xx li
16	Laurencius Thomas	xl s
	Rogerus Johñ	xl s
	Joñes Rawe	iiij marke
	Joñes Jamys	xl s
	Nichus Coke	xl s



14	Thomas Levelys	xv li
16	{ Joñes Hermañ	xl s̄
	{ Jenkyñ Hicke	iiij li
	{ Riçus Johñ Hyc̄k	iiij li
15	{ Riçus Robyñ	ix li
	{ Nichus Wyll <sup>m</sup> Harry	C s̄
14	Joñes Will <sup>m</sup> Harry	xx markē
16	{ Riçus Bosowe	xl s̄
	{ Riçus Jamys Vyghañ	v markē
	{ Riçus Thomas	v markē
	{ Riçus Jamy Jack Perē	iiij li

[f. 29b]

Pochia de Beryan adhuc.

The value of the goode ʔt̄c ut infra.

15	Thomas Wyll <sup>m</sup> valz in bonis	v markē
16	{ Hugo Richard̄	C s̄
	{ Robtus Rawe	xl s̄
	{ Joñes Argudyñ	xl s̄
	{ Joñes Davye	iiij li
15	{ Joñes Boskawēñ	viiij li
	{ Nichus Johñ Thomas	C s̄
16	{ Thomas Noye	iiij markē
	{ Rad̄phus Bolfrankeñ	v markē
	{ Riçus Rawe	xl s̄
	{ Thomas Rawe	xlviij s̄ viij d̄
15	{ Nichus Johñ Rawe	vij li
	{ Jacobz Phelyppe	viiij markē
16	{ Willems Jamys	iiij li
	{ Joñes Miller	iiij li
	{ Joñes Sogeowe	xl s̄
	{ Thomas Hervye	iiij li
	{ Thomas Johñ Rawe	xl s̄
	{ Nichus Hañ	xl s̄
	{ Willems Jamys Johñ	iiij li
	{ Jenkyñ Hockyñ	xl s̄
14	Robtus Botrell	x li
15	Joñes Jenkyñ	Cxx s̄
16	{ Pascasius Hervye	xlviij s̄ viij d̄
	{ Riçus Will <sup>m</sup>	xl s̄
	{ Riçus Kertar	v markē
	{ Laurencius Johñ	xl s̄

15	Jenkyñ Tyrlodeves	C s̃
16	{ Joceus Hartt	iiij li
	{ Riçus Jack Nicott	xl s̃
15	Riçus Will <sup>m</sup> Jack	C s̃

[f. 30]

Beriañ adhuc.

The value of the goodę ȳc̃.

16	Joñes Hick Richard valz in bonis	iiij li
15	Willms Hockyñ Moryce	x markę

The Aliens w<sup>n</sup> in the seið pyshe.

16	{ Thomas Brittoñ de Beriañ in bonis	xij d̃	} Nañ in ptibz Britānie sub obedienç Rege Frācoz
	{ Reynold sv <sup>nt</sup> Alexand <sup>r</sup> Rie	xij d̃	
	{ Vdyñ s̃ Thomas Levelys	xij d̃	
	{ Rowlonð s̃ Jenkyñ Hicke	xij d̃	
	{ Henr sv <sup>nt</sup> Aliçt Hycke	xij d̃	
	{ Martin s̃ J. Will <sup>m</sup> Harry	xvj d̃	
	{ Will <sup>ms</sup> s̃ Nicott W. Harry	xvj d̃	
	{ Charolus s̃ Riç Jamys	xij d̃	
	{ Vdyñ s̃ Pere Harry	xvj d̃	
	{ Vdyñ s̃ Harry Col	xvj d̃	
	{ Henr } sv <sup>nt</sup> Nicott J. Tōme	xij d̃	
	{ Johñ }		
	{ Vdyñ sv <sup>nt</sup> T. Harvy	xij d̃	
	{ Lodewycus s̃ Riçi Karter	xij d̃	
	{ Petrus s̃ Riç Rawe	xij d̃	

[f. 30b]

Pochia  
de  
Paule

Abbas ȳ Convent <sup>y</sup> de Haylys	} xxxiiij li xvij s̃
pp <sup>t</sup> etarij Rectorie ecclie pochis	
iðm valet p anñ in decimis obvēc̃	
ȳ alijs emolumētę eiðm rectorie spectant̃	
Willms Nedercott vicari <sup>y</sup> ecclie	} x li
pochis iðm valet p anñ in decimis	
oblaç ȳ alijs emolumētę vicarie	
iðm ptinēt	

The value of the lande w<sup>in</sup> the  
seid<sup>t</sup> pishe by the yere.

12	{	Thomas Seyntaubyn valz in tre t	}	v markē
		teñ iðm p anñ		
		Rogidus Mohune		x markē
		Heñ Copstonne		xxvj s
		Ričus Penros Methete		xxxiiij s iiij d
		Ričus Rescruke		iiij markē
		Witlms Thomas		xv s
		Oliverus Treyaghañ		xxxij s
		Heñ Viviañ		xj s viiiij d
		Heñ Reskemñ		iiij s
		Nichus Kenegy		viiij s
		Joñes Kyllygrewē		vj s
		Joñes Sewynnowe		iiij s ij d
		Heñ Cuffe		v s viiiij d
		Heñ Malyuy <sup>e</sup>		iiij s vj d
		Joñes Bevytt		iiij s vj d
		Heñ Thomas Kyllygrewē		viiij s
		Joñes Penros		vj
		Witlms Trevyssa		iiij s iiij d
		Nichus Oppye		vj s viiiij d
		Thomas Levelys		xiiij s iiij d
		Heñ Trevelyāñ		x s xj d

[f. 31]

Paule adhuc.

The value of the lande t<sup>c</sup>.

12	{	Joñes Bassett Miles valet in tre	}	xliiiij s viiiij d
		t teñ iðm p anñ		
11		Terñ Mañij de Alwartoñ		Cvij s iiij d
Villa de Mouse- hole	{	Joñes Trevalscus	}	x s
		Heñ Trembaghe		xx s
		Witlms Carnsvyowe		xvij s
		Stephus Gonewyñ		v s
		Joñes Tregonscus		xxiiij s
		Ričus Nevytt		xvij s
		Thom <sup>s</sup> Pascowe		ix s
		Ričus Jack Alchyñ		xxxv s iiij d
		Jankyñ Richard Jankyñ		ix s
		Jankyñ Nele		iiij s viiiij d
		Ričus Mynnowe		v s
		Joñes Thomas Robt		v s
		Witlms Michett		iiij s

12	Wittms Thomas Francē	xxxv s̄
	Ričus Brownyngē	ix s̄
	Joñes Jankyñ	iiij s̄
	Joñes Kegwyñ	xiiij s̄
	Thomas Pentreth	vij s̄
	Jankyñ Laurye	xij s̄
	Stephus Goundry	v s̄
	Jankyñ Tyake	vij s̄
	Henric Botissava	xij s̄
	Joñes Nicoll	iiij s̄
	Thomas Conntt	iiij s̄
	Joñes Benatt	vij s̄
	Ričus Bossanquoth	iiij s̄
	Thomas Tynñ	v s̄
	Amicia Walter	vij s̄
	Joñes Gorlett	xij s̄
	Henricus Thōma Eda	vij s̄

[f. 31b]

Pochia de Paule adhuc.

The value of the lande w<sup>in</sup> the towne of Mousehole.

12	Thomas Perē val; in terf t teñ	}	vj s̄
	iñm p añ		
	Thomas Gorlett		vij s̄
	Joñes Barra		vij s̄
	Joñes Rawe		v s̄
	Heñ Coplestoñ		vij s̄
	Thomas Bakeñ		xij s̄
	Heñ Bosvarweñ		x s̄
	Joñes Hockyñ		xiiij s̄
	Thomas Johñ Perē		v s̄
	Joñes Tremeyne		iiij s̄
	Jenkyñ George		vij s̄
	Thomas Perē		xvij s̄
	Joñes Robt		viiij s̄
	Heñ Nanstewas		iiij s̄
	Thom <sup>s</sup> Niclis		v s̄
	Joñes Hicckē		iiij s̄
	Jenkyñ Sewynnowe		v s̄
	Ričus Sextoñ		iiij s̄
	Pas-casius Nicoll		iiij s̄
	Ričus Rawe		xvij s̄
	Thomas T <sup>g</sup> ose		viiij s̄

[f. 32]

Paule adhuc.

The value of the goodē of thenhit<sup>ntē</sup>  
w<sup>t</sup>in the seið piſhe ⁊ theiř harnes.

15	Ričus Pluynst valz in bonis	x markē
16	{ Henricus Jenkyñ Ričus Borgoñ Joñes Benetto	xl ſ iiij li xl ſ
15	{ Joñes Thomas Jenkyñ Ričus Thomas Jenkyñ	vij li C ſ
16	{ Henricus Micheñ Wiñms Micheñ Dionisi <sup>ñ</sup> Miller	iiij li iiij li xl ſ
15	Henrič Botsava	C ſ
16	{ Martin <sup>ñ</sup> Marrañ Joñes Hockyñ Joñes Badcoñ Hugo Harp Thomas Kyrrē	iiij li iiij li iiij li xl ſ xl ſ
15	{ Joñes Bodynar Joñes Nicott Thomas Benetto	x markē x markē C ſ
16	Jacobz Hoskyñ	xl ſ
14	Thomas Boswarthogga	x li
15	Thomas Jacke	Cxx ſ
16	{ Alan <sup>ñ</sup> Gregor Wiñms Alañ Wiñms Tayler Nichus Walter Edwardus Jacke David Wiñms Jenkyñ Thōma Joñes Thomkyñ Joñes Thomkyñ m <sup>ñ</sup>	iiij li xl ſ xl ſ xl ſ xl ſ v markē xl ſ iiij li
5	{ Wiñms Nethercott Clīcus vič iðm } valz in bonis	xl markē
7	{ Joñes Will <sup>m</sup> Caþlus Joñes Hencoñ	x markē C ſ

[f. 32b]

Pochia de Paule adhuc.

The value of the goode t̃c ut infra.

		Jenkyñ Richard Jenkyñ valz in } iiij li
		bonis }
16	{	Wyllms Duwyñ iiiij markē
	{	Joñes Brusse iiij li
15		Ričus Rawe Vyghañ vij li
14		Thomas Chywartōñ xx markē
Villa	15	Ričus Mynnowe x markē
de	14	Thomas Pascowe x li
Mouse-		Radphus Rows xl s̃
hole	16	{ Joñes Tregonscowe iiij li
	{	Ričus Nughañ iiiij li
	{	Ričus Bossanquoth iiiij li
13		Wyllms Coķ xl li
16	{	Joñes Burwyķ iiiij li
	{	Wyllms Trefromeķ iiiij li
13		Joñes Kekwyñ xx li
14		Amys Stabba x li
16	{	Joñes Benett iiij li
	{	Wyllms Preter xl s̃
	{	Thom's Tynñ xl s̃
15		Joñes Nugh'm C s̃
16		Robtus Rede iiij li
13		Joñes Gotholghañ liij li
		Thom's Gorlett x li
		Joñes Harry Rawe C s̃
		Joñes Gorlett x li
		Ričus Cock x markē
		Joñes Robt xl s̃
		Thomas Joñes Perē vj markē
		Ričus Harry Rawe xl markē
		Thomas Baker iiiij li
		Joñes Benett m̃l v markē
		Joñes Henry Stabba xl s̃

[f. 33]

Paule adhuc.

## The Alyens ⁊ their gooder.

16	Vdin <sup>o</sup> Britton de Mousehole valz	}	xij d
	in bonis		
	Robtus Pctor de ead̄m		ij s
	Rawlyn Britton		paup
	Pascasius sv <sup>ntt</sup> Elizabeth ux	}	xij d
	Thome John		
	Trebyth s John Burwyk		iiij s iiij d
	Johnes Britton	}	vj s viij d
	Martin <sup>o</sup> Britton		
	sv <sup>nte</sup> Kegwyn		
	Argall s Willi Pter		xij d
	Xpons s J. Harf Rawe		xij d
	Petrus s John Gotholgan		ij s
	Croudou s John Stabba		xl d
	Johnes s Johnes Stabba		xl d
	Gregori <sup>o</sup> s Ricus Cock		ij s
	Alan <sup>o</sup> Britton de Mousehole		xij d
	Johnes Kerver de ead̄m		xl d
	Johnes Nawmele		ij s
	Henric <sup>o</sup> s John Robt		ij s
	Johnes s Ricf Rawe		ij s
	Johnes s Thome Germañ		xij d
	Johnes Pety		ij s
	Alan <sup>o</sup> Britton		vj s viij d
	Morgan Britton de Newlyn		vj s viij d

[f. 33b]

Pochia de Sancret	3	{	P'or ⁊ cōvent <sup>o</sup> de Sentt Germañ pp'etarij Rectorie ecclie pochis ibm valz p anñ in decimis obvēc ⁊ alijs emolumētē eidm Rectorie spectant	}	xij ti
3	{	{	Joñes Harrys in decretē Baculari <sup>o</sup> vicañ ecclie pochis ibm valz in decimis oblañ obvēc ⁊ alijs emolumētē p anñ eidm vicarie ptinēt	}	viij markē

The value of the lande w<sup>in</sup> the  
seid<sup>t</sup> pishe by the yere.

Joñes Treronek	iiij markē
Heñ Copleston	xl s̃
Joñes Arundell Talfreñ	xiiij s̃ iiiij d̃
Joñes Pentyr	xl s̃
Thomas Treowrañ	xlviij s̃ viij d̃
Joñes Trelōdeves	xl s̃
Thomas Levelys	xxiiij s̃ iiiij d̃
Joñna Mannañ	xxviij s̃
Heñ Trewoiffe	xiiij s̃ iiiij d̃
Heñ Boswothnowe	xviij s̃
Ričus Kartar	xviij s̃
Thomas Vele	xx s̃
Heñ Viviañ	xx s̃
Heñ Reskymñ	xx s̃
Nichus Kenegye	x s̃
Thomas Plemayne	v s̃
Joñes Bevyth	xviiij s̃
Joñes Bassett Miles	viiij s̃
Ričus Bosyñ	viiij s̃
Joñes Chamounde	ix s̃

[f. 34]

Sancrette adhuc.

The value of the lande t̃c.

12	Heñ Gorañ valet in t̃re t̃ teñ iñm } p añ	xiiij s̃ iiiij d̃
	Joñes Perē	v s̃
	Ričus Bonythoñ	x s̃
	Joñes Richard	v s̃
	Willms Bosustowe	x s̃

The value of the goode of thenhit<sup>ante</sup>  
w<sup>in</sup> the seid<sup>t</sup> pishe t̃ their harnes.

15	Radphus Botrethe valet in bonis	C s̃
	Joñes Amys	viiij markē
	Joñes Pascowe	C s̃
16	Joñes Hoskyñ Vighañ	iiij markē
	Wolcoñ Jack Martyñ	xl s̃
	Joñes Nicoll de Boswyns	iiij li
15	Gylbertt Engwyñ	x markē



16	{	Willems Gregor	iiij li
		Henric <sup>9</sup> Jenkyñ	iiij markē
		Willems Jack	xl s̃
		Johes Thomas Davie	xl s̃
		Ričus Treighañ	iiij li
14	{	Thomas Treowrañ	x li
		Robtus Trembaghe	xij li

Poch de Sancrett adhuc.

The value of the goode ʔc̃ ut infra.

16		Rađphus Hoskyñ valet in bonis	iiij li
15	{	Henricus Legowe	} Cxx s̃
		Jacobus Legowe	
16	{	Jacobus Benett	iiij li
		Hoskyñ Borañ	iiij li
14		Jenkyñ Johñ Pascowe	x li

The Aliens w<sup>t</sup>in the same pishe.

16	{	Willems Brittoñ de Sancrett laborer	xij d̃	} Nañ in ptib <sup>3</sup> Britanie sub obedienç Rege <sup>1</sup> Franco <sup>3</sup>
		Henric <sup>9</sup> Brittoñ de ead̃m tynñ	xl d̃	

# THE KRAKATOA EXPLOSION, OF 26TH AUGUST, 1883.

BY HOWARD FOX.

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The following reports of Masters of vessels arriving at Falmouth, from the East Indies, subsequent to the great Krakatoa Eruption, throw considerable light on various points connected with it.

Captain Robert Williams of the barque "Arabella," stated as follows:—on Tuesday morning, August 28th, I was in Lat. 5.37 S., Long. 88.58 E., when showers of fine sand or ash rained on the deck, and continued to do so during the remainder of that day and all the following day. The wind was light from the W.S.W., Java Head bearing  $E\frac{1}{4}S$ , distant about 970 miles.

A bottle of the ashes collected by Captain Williams was sent to Mr. Norman Lockyer, and acknowledged by him in "*Nature*," for December 13th, 1883, p. 152.

Captain M. Park, of the barque "Sinquasi," reported that :—

"On August 28, 29, and 30, while in Lat. 6° S., Long. 93° E., quantities of fine white dust fell continuously, covering the decks and rigging until the vessel reached Lat. 12° S., Long. 86° E. Quantities of pumice were floating on the surface of the water, some of which I dipped up in a bucket and used to scrub the decks with."

The large fragment of pumice stone in the Museum of the R. C. Institution, was picked up floating on the sea in January, 1884, in Baly Straits, 600 miles from Krakatoa, by Captain Seymour, of the barque "Oxford," who reported sailing through fields of pumice stones and ashes all the way from Pekalunga to half way through Baly Straits, the stones varying in size from 2 feet in diameter to mere dust.

The extraordinary length of time the pumice remained afloat is certified by Captain Porter of the barque "Harrington,"

who reported that on his outward voyage to Java in June, 1884, he found the sea covered with pumice stones of various sizes, from 2 feet in diameter to mere ashes. These stones extended from 600 miles south of Sunda Straits more or less up to the said Straits. The fields of pumice with other debris, such as broken wood and trees, at times covered the sea as far as the eye could reach. A great variety of fish was seen amongst the pumice. His vessel discharged the cargo at Samarang, and loaded a fresh cargo at Sourabaya, and sailed from Sunda Straits about the 26th August, taking a direct course for the Cape of Good Hope, occasionally passing through pumice, but not in such vast fields as on the outward voyage. The size of the stones varied from six inches in diameter down to ashes. The last pumice seen was off Algoa Bay in the set of the Mozambique Current about the end of September, 1884. This last pumice was covered with barnacles, weed, &c., and was floating low, as if the weight of the parasitical growth would soon sink it. Captain Porter caught two fish in the pumice and preserved them. The fish were small and covered with spines, which they erected when excited. The sailors called them sea porcupines.

These reports appear to prove:—

1. That as the explosion was first heard on the 26th August, the decks of vessels were covered with fine ashes at a distance of nearly 1000 miles, within 48 hours of the explosion.
2. That the pumice covered the surface of the sea north of Java for many months subsequent to the explosion.
3. That vast quantities of pumice and ashes drifted during the next 13 months towards the Cape of Good Hope, gradually sinking lower in the water, owing to parasitical growth and to the absorption of water increasing the specific gravity.

NOTE ON ROHESIA DE LA POMERAI.  
By THOS. BOND.

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In collecting evidence for my notice of Rohesia De la Pomerai, sister of Reginald Earl of Cornwall, which is printed in this Journal, Vol. I, 1864, pp. 31-32, I met with repeated mention of "Rohesia, wife of Henry De la Pomerai" at no great distance from each other in point of time. It was therefore natural to conclude that all such notices related to the same person, for Rohesia is not a very common name. Nevertheless, I felt, as I have before stated, that there was some obscurity which required to be cleared up, because there was great difficulty in determining who was Rohesia's father. The evidence showed that Rohesia, wife of Henry De la Pomerai, was sister of Reginald Earl of Cornwall, and it was equally proved that Rohesia wife of Henry De la Pomerai was sister of Doun Bardolf. Trustworthy evidence also established that Reginald Earl of Cornwall and his sister Rohesia had the same mother, viz., a daughter of Sir Robert Corbet, whom Dugdale\* names Adela. There seemed every reason to believe that Rohesia was not a daughter of the king, and the only alternative therefore appeared to be that her mother, who is known to have married Herbert the King's chamberlain, also married Thomas Bardolf, the father of Doun Bardolf. The mother of Doun Bardolf, however, was undoubtedly a daughter and heir of Ralph Hanselin, and it seemed therefore that Thomas Bardolf must have had another wife, namely the above-mentioned daughter of Sir Robert Corbet, though no mention of such is met with elsewhere.

With a view to clear up the difficulty I have again investigated the subject, and from additional evidence which I have procured, as well as from a careful calculation of dates, and by weighing probabilities, I have come to the conclusion that there were two Rohesias, the first being sister of Earl Reginald,

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\* His addition to the Baronage in "*Collectanea Topographica*," p. 219-20.

and wife of Henry De la Pomerai the father, whilst the other, the sister of Doun Bardolf, was wife of Henry De la Pomerai the son of the first Henry and Rohesia. I find likewise that the name of the mother of Earl Reginald and his sister was Sibilla and not Adela.\*

The first Henry De la Pomerai was living in 1124, 25 Henry I, when he assented to the gift by Joscelin De la Pomerai, his father, to the Abbey of St. Marie Du Val, in the parish of St. Omer in Normandy, of the churches at Stockleigh Pomeroy, Berry Pomeroy, "Braordin and Clisson" in Devonshire, together with other lands and tenements in that county and in Normandy. He was a witness to a deed in Normandy in 1137.† In 2 Henry II, he was charged for Danegeld in Devonshire, and in 11 Henry II, 1164, he paid £7 12 6 for the scutage of Wales. He probably died very soon after this, for in 12 Henry II, Henry De la Pomerai, no doubt his son, owed £80 6s. 8d., for a fine of his lands, which we should now call "succession duty." The first Rohesia De la Pomerai, "mater predicti Henrici," survived her husband and presented to the church of Stockleigh Pomeroy in right of her dower.‡ In 22 Henry II she owed three marks "pro foresta,"§ Joscelen De la Pomerai, who is described as nephew of Herbert and William Fitz Herbert, and of Reginald Earl of Cornwall,|| was her second son. Whether this Rohesia was a daughter of the King or of his Chamberlain by Sibilla Corbet, there is no evidence to show, but it is noteworthy that Hoveden speaks of "Jollanus frater Regis Henrici, De la Pomerai, appellatus" as having been implicated in the treasonable seizure of St. Michael's Mount, in Earl John's rebellion against his brother King Richard I. The Chronicler is certainly in error in speaking of Joscelin De la Pomerai as brother of King Henry II, for even supposing Rohesia his mother to have been a daughter of King Henry I, her son could only have been first cousin of King Henry II. The passage, however, seems to indicate an impression that there was some blood relationship between the King and his subject.

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\* Plac: Coram Rege. Pasch, 7 and 8 John.

† Archives de Calvados.

‡ Placita, 15 John, Trin., rot. 17.

§ Pipe Roll, Devon.

|| Hoveden.

Henry De la Pomerai the second, called Henry De la Pomerai, junior, gave land to the Priory of St. Nicholas at Exeter,\* "*Rohesia matre mea*," and "*Joscelin, fratre meo*," being witnesses. It was this Henry who joined the Earl Mortain in his rebellion against King Richard I, and died about 6 Richard I, as stated before. His first wife was Matilda De Vitrie, from whom the Pomeroyes of Berry Pomeroy derived their descent; and he married secondly Rohesia Bardolf, whose second husband, John Russell of Kingston Russell, Dorset, claimed lands in Upoteri Ascumbe and Stockleigh co. Devon, in right of his wife against Henry De la Pomerai, Mich. 2 John; and in 15 John, he and Rohesia his wife claimed to present to the church of Stockleigh against the abbot of Valle.† These claims were in respect of Rohesia's dower as widow of Henry De la Pomerai.

The first Joscelin De la Pomerai was son of Radulf De Pomeria, who followed William the Conqueror to England, and obtained from him a grant of 55 lordships in Devonshire, including Beri (now Berry Pomeroy), and two in Somerset. The village of La Pomerai in Normandy, from which he derived his name, is situated near the Olecy Station, on the Caen and Laval Railway, but on the other side of the river Orne.

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\* Cartulary of St. Nicholas Priory at Exeter.

† Placita 15 John, Mich. Rot. 2 and 17.

**"MACHINERY FOR THE MANUFACTURE OF NITRATE OF SODA  
AT THE RAMIREZ FACTORY, NORTHERN CHILI."**

**BY ROBERT HARVEY, Assoc. M. Inst. C.E.**

*(Extracted from the Minutes of Proceedings of the Institution of Civil Engineers,  
by permission of the Council.)*

The production of Nitrate of soda has, since 1869, been developed with great rapidity, and its manufacture gives employment to a vast amount of English-made machinery and capital, and many English engineers and mechanics. In 1845 nitrate of soda was produced by extracting the "caliche" or raw material from the ground, and boiling it in copper pans of native manufacture, the fuel employed being carbonized wood dug up from the Tamarugal Pampa, in the province of Tarapacá, formerly in Peru, but recently annexed by Chili, where there are in many parts indications of a sunken forest. Probably owing to the primitive method of manufacture, and the fact that nitrate of soda was not commercially known, the exportation in 1845 was only 6,000 tons. It increased by degrees up to 70,000 tons in 1859, and in 1883 the exportation of this valuable fertilizer reached 12,500,000 Spanish quintals, or 570,000 tons. Such a production would have created an excess over the demand, had not the producers formed an agreement to limit their output, so as to meet European requirements, which at present are 460,000 tons annually. This amount is produced by thirty-seven different establishments or factories, technically known as "oficinas," and by thirty distinct firms or owners, the production of English companies being 186,000 tons, or 40 per cent. of the whole. The productive capacity of the Oficina Ramirez is 140,000 quintals, or 6,360 tons monthly; but the works are now like all the other establishments, limited to 40 per cent. of their productive capacity, or 56,000 quintals per month, giving an annual output of 30,000 tons.

The process of manufacturing nitrate of soda, and a description of the machinery of the Oficina Ramirez, which is

the largest establishment of its kind in the world, form the subject of this Paper.

In September, 1882, the Author received instructions from the directors of the Liverpool Nitrate Company, Limited, who own 6 square miles of nitrate grounds in the district of Ramirez in the province of Tarapacá, to prepare plans and estimates for the construction of an oficina capable of producing from 6,000 to 6,500 tons of nitrate of soda per month, this total being 1,000 tons more than was in the power of the largest oficina then extant. In January, 1883, the plans and specifications were laid before the directors and approved of, and the Author was instructed to order the necessary machinery (Plate 7). Six steel boilers, 30 feet long by 6 feet 6 inches, double flues, with six Galloway tubes, were constructed by Messrs. R. Daglish & Co., of St. Helen's. Twelve boiling-tanks with steel condensing tubes, ninety crystallizing-tanks, two feeding-tanks, a five-compartment washing-tank, as well as three circular tanks, 25 feet in diameter by 12 feet high, came from the works of Messrs. Preston, Fawcett, and Co. The locomotives and rolling-stock, with a length of  $2\frac{1}{2}$  miles of portable railway, as well as two semi-portable engines for the wells, were made by Messrs. John Fowler and Co., of Leeds, and the engines, pumps, machine-tools, &c., by Messrs. Tangye Brothers. And three crushing-machines were made by Messrs. North, Humphrey, and Dickinson, of the Tarapacá Foundry, Iquique.

Having seen the contracts for plant properly placed, and having purchased the machinery required for the wells for immediate use, which was sent by steamer, the Author left for Iquique, arriving there on the 15th of May. He at once commenced making the necessary excavations for the foundations for the machinery, which came by sailing vessels on the 10th and 29th of December. The first batch of crystallizing tanks, which were shipped unriveted, reached the oficina on the 23rd of December.

Owing to the salt and other solvents contained in the soil, the greatest care had to be taken in preparing the foundations for the carrying walls, as, if only a small quantity of water should penetrate to the foundations, they would immediately



become damaged, perhaps beyond repair, losing their original lines by subsidence, and thus fracturing the steam and other connections resting on them.

In making the foundations for the carrying walls, which are constructed of trimmed igneous boulders found in the locality, the ground was excavated to a depth of 12 feet, over an area of 7,500 square feet, although the walls are only 84 feet long, and 29 feet apart from outside to outside. A layer of broken boulders 2 feet deep was first deposited, and a filling of one-third Portland cement, one-third sharp sand, and one-third hydraulic lime, was run in the interstices. Next a layer of concrete, made of hard stone, of about 1-inch cubes, with one-half cement and one-half sand, was superposed 1 foot deep, and then three layers of good masonry all cemented. On this the walls were built, 12 feet high, 6 feet wide at the base, and 3 feet 6 inches at the top. This apparently excessive batter is necessary as a safeguard against the frequent earthquakes, which often cause much damage to machinery constructed on weak, straight, or high foundations. A wooden framing of Oregon pine, with the uprights and runners 1 foot square, the uprights being 5 feet 6 inches from centre to centre, was next built, on a wall 2 feet 6 inches high by 2 feet 6 inches thick, in the centre of the space between the two main walls, and parallel to them, in order to obtain a good distribution of the weight of the boiling tanks. On this framing twenty-four iron girders, 10 inches wide, 10 inches deep, and 35 feet long, were laid, and on the top of the girders the boiling tanks were bolted in sections and riveted. The inside carrying-wall is backed up by cemented masonry, 6 feet high and 4 feet wide, with an inward sloping surface, so as to catch any drainage or leakage from the ends of the tanks, from whence it flows into the passage between the two main walls by means of ten drains or conduits of 3-inch pipe built in the main wall. From the north to the south end of the floor between the walls there is a fall of 6 inches, causing all the drainage to flow to the south end, where a canal and tank are provided for its reception. Three parallel walls are built in front of the main walls, on which the washing tank, consisting of five compartments, each 24 feet by 6 feet 6 inches, rests.

The boiler, flues, and setting, are constructed on Livet's system, and give excellent results. They are built in pairs as regards flues, with a chimney 42 feet high by 5 feet in diameter, of iron, having a base of 9 feet for each pair of boilers.

The feed-water tank, fresh-water tank, top mother-liquor tank, and well-water tank, are all erected on substantial masonry built on deep concrete foundations, and rest directly on a bed of cement.

The ninety crystallizing tanks, or precipitating tanks, 16 feet by 16 feet, by 3 feet deep on one side, sloping to 2 feet 9 inches on the other, in order to thoroughly drain the precipitated nitrate, are erected on a strong framework of Oregon pine 6 inches square in section, with longitudinal, transverse, and diagonal stays, 4 inches square in cross-section. Under each crystallizing tank there are six runners of timber, 4 inches square, on which it rests, on the projecting ends of which is a plank roadway for the men in charge of the hot nitrate in solution, known as "caldo," literally boiling juice. This consists of "caliche" dissolved in boiling mother-liquor. All the crystallizing tanks with framework rest on low stone walls built on a dry rubble foundation, cement being in this case unnecessary, as leakage from mother-liquor or nitrate in solution does not dissolve the ground on which it falls.

The whole of the known nitrate deposits in the world are situated on the west coast of South America, between south latitude  $19^{\circ}$  and  $27^{\circ}$ , although there are indications of nitrate in Nevada and California.

The "caliche," or raw nitrate of soda, is a mineral deposit formed, it is alleged, by the contact of decomposing animal and vegetable matter with the salts left on the retreat of the sea. This theory of its formation is supported by the frequent discovery of guano, sea-birds' eggs, fishes, feathers, birds' skeletons, shells, fossils, &c., in proximity to the caliche, and at a depth of 12 to 15 feet below the surface of the ground, and also by the presence of iodine as iodate of soda, which is peculiar to the sea.

The best deposits are found on the skirts of the Tamarugal Pampa. The caliche lies in beds of a thickness varying from

6 inches to 12 feet, beneath a covering of from 1 foot to 10 feet of conglomerate or pudding stone, or hard rock, principally porphyry, but varying also in character to foliated gneiss, greenstone and syenite. No caliche beds are known to exist nearer than 15 miles from the sea coast, and the furthest, those in the district of Atacama, are distant about 90 miles. The Ramirez caliche beds, or raw nitrate deposits, comprise 3,270 acres, or nearly 6 square miles, and are situated on the border of the Tamarugal Pampa, 59 miles from the port of Iquique by the line of the Nitrate Railway Company, and 42 miles by direct mule road.

The caliche is plentiful and easy of extraction; its chemical analysis is, nitrate of soda, 51 per cent.; common salt, 26 per cent.; sulphate of soda, 6 per cent.; sulphate of magnesia, 3 per cent.; and insolubles, 14 per cent.

In order to provide caliche sufficient to meet the requirements of so large a system of machinery, at least two hundred and fifty mules and forty carts would be required; to avoid this expense the Author introduced the innovation of a portable railway with two locomotive engines and eighty side-tip cars, thus precluding the necessity of employing more than thirty mules and five carts for taking the caliche to the side of the line which runs out  $1\frac{1}{2}$  mile in the caliche quarries. This has proved a most efficient and economical mode of carriage.

The locomotives are four-wheel coupled side-tank engines, with two-wheel trailing bogie and outside cylinders 8 inches in diameter, and having 12 ins. length of stroke. The driving-wheels are wrought iron with steel tires 2 feet 6 inches in diameter, and 4-foot wheel base; the trailing-wheels are cast-steel, 1 foot 6 inches in diameter; the weight of the engine in working order is 6 tons 15 cwt., and it carries 250 gallons of water and 5 cwt. of coal. The locomotives, as well as the cars, were designed by Mr. David Greig, M. Inst. C.E. The line has a 2-foot gauge, with steel rails and steel sleepers, known as Greig's Patent Portable Railway. The sharpest curve on the line is 60-foot radius, and the steepest gradient 3.15 in 100. The rails weigh 16 lbs. to the yard. The cars with frames and wheels weigh 5 cwt. each, and carry 1 ton 10 cwt. of caliche. The ordinary load for an engine is fifteen cars, or from 22 to 23 tons per trip.

The caliche is extracted in the following manner:—A shaft about 1 foot in diameter is sunk. Into this a boy is lowered, who forms a recess at the bottom in the shape of an inverted funnel, which is filled with a slow blasting powder (as shown

in the above Fig.) made on the works, and is ignited by one ordinary fuze. This causes a dull explosion, breaking and loosening the ground around the shaft for a radius of about 10 yards. The overlying stratum of hard rock, porphyry, gneiss, &c., locally known as "costra," is removed, and the caliche extracted and split and broken by sledge hammers, steel wedges, and bars, into blocks of about 30 lbs. weight. It is then loaded in the cars and carried into the crushing machines, and there broken into cubes of about 2 inches. The three crushing machines are driven by a 25 HP. Tangye engine.

Cars stand under the mouths of the crushers to receive the broken caliche, and these when fully loaded are hauled up to the turntable by the winding-engine, and from there shoved on and the contents tipped into the boiling tank in course of being charged. The turntable is not in the centre of the six sets of rails serving the twelve boiling tanks with the side tip cars, but

is on one side, and is always open to the rails which lead to the two last boiling tanks, so that in case of the winding-engine over-hauling, the cars cannot be derailed. The boiling tanks are heated by a 3-inch steel spiral pipe six rows deep, 1 foot off the sides, with steam from the boilers at a pressure of 60 lbs. to the square inch. The steam enters at the top of the spiral, and leaves at the bottom of the tank by a return pipe, which leads to the return valves of the boilers, thus forming a circuit.

The boiling is effected by the well known Shanks's lixiviating system, introduced in nitrate manufacture by Mr. J. T. Humberstone, causing a continual circulation of the lighter liquid to the other boiling tanks by following the denser and heavier solution. As soon as the solution, which has now become "caldo" stands at  $110^{\circ}$  by Twaddell's hydrometer, it is allowed to settle for a short time and is then drawn off into the first canal, from which it runs into the crystallizing tanks by means of other canals. The caldo is run off at a temperature of  $240^{\circ}$  Fahrenheit.

The "ripios," or refuse, in the boiling-tanks is then washed by well water and the washings are run off into the washing tank, taking in solution nearly all the nitrate of soda which may remain in the refuse. The washings are pumped up by a centrifugal pump, and used over again in the next boiling tank. When all the washings have run off, the doors at the bottom of the boiling tank are opened, and the refuse falls into cars placed beneath, and is drawn away and dumped on the refuse heap.

After the nitrate solution has become cool, and the nitrate of soda has crystallized in the tanks, the "agua vieja," or mother liquor, is run off into a set of return canals, by which it flows into the bottom mother-liquor well, which is a round tank 25 feet in diameter and 12 feet deep, sunk level with the surface of the ground. From here it is pumped up by two of Tangye's 4-inch special pumps to the top mother-liquor tank, from whence it is run into the boiling tanks to undergo a similar process. The mother-liquor stands at  $90^{\circ}$  Twaddell.

When the nitrate in the crystallizing tanks is fairly drained, it is shovelled out on to the drying-floors, where it soon becomes perfectly dry in the tropical sun, and is put in sacks, weighing

about 3 cwt. each when full, and loaded on the railway cars, which are run on to the drying-floors by a siding in each floor, one hundred sacks being carried in each car. It then goes to Iquique by rail, and is exported to Europe and the United States as the well-known fertilizer and article of commerce, nitrate of soda.

The cost of machinery, plant, and construction of these works amounted to £110,000. The whole was finished and was producing nitrate on the 23rd of May, 1884, or in the short space of six months after the arrival of the first lot of machinery. The celerity with which the machinery was placed in a state of complete efficiency is partly due to the choice of good mechanics and artisans brought out by the Author from England, and to the firms who supplied the machinery, and especially to the able assistance rendered by the manager and resident engineer, Mr. James Anderson. The disadvantages of working in a desert 60 miles from a town considerably increased the difficulties of constructing these works.

There is but one oficina on this coast with more boiler-power than Ramirez, namely that of Antofagasta, designed and constructed by Mr. J. F. Spencer, M. Inst. C.E., assisted by the late Mr. J. G. Adamson, Assoc. M. Inst. C.E.; and it is probably the finest piece of plant engineering in South America; but it has never produced more than 4,500 tons of nitrate per month, owing to the very low grade of caliche belonging to the works, the average now only containing 20 per cent. of nitrate, the remainder being salt and insolubles. The refuse thrown out from Ramirez tanks contains only 3 per cent. of nitrate. This could be extracted by more washing, but it would cause a superfluity of weak washings and a reduction in the strength of mother-liquor, so as to need further evaporation in order to reduce the volume and raise the density. During the past six months the ratio of nitrate produced to coal consumed was as 12 to 1; or for every ton of coal burnt, no less than 12 tons of nitrate of soda were manufactured.

One of the most serious questions in the nitrate districts is the supply of water. The water found in wells in the Pampa collects in hard cavities by constant percolation from the melted snow on the Andes or Cordilleras. The course of this water is, however, very irregular; and there are some oficinas which have

to pump the necessary water over a distance of from 4 to 5 miles. Fortunately, in Ramirez the supply of water is practically unlimited. The two wells are 82 yards deep, by 9 feet by 10 feet, timbered all the way down with 12 inches by 2 inches lining, and 6 inches by 6 inches frames at every 4 feet to bear the thrust of the lining, and to carry the guides for pump-rods. They are worked by three-throw Tangye pumps, 3 inches delivery in each, and each well can deliver 70,000 gallons in twelve hours. This water, however, is contaminated by salt and alkaline matters, which necessitates the cleaning of the boilers every two months.

In Ramirez well-water is conveyed in pipes from the large tank to the centre of the square for workmen, for culinary and household purposes, but as this is unfit for drinking, soft water is provided by condensing the exhaust steam from the large engine and steam-pumps.

Owing to the reduced production before alluded to, only three hundred men are now employed on the works, but there is living accommodation for six hundred workmen with their families in a large "plaza," or square, and two streets. The work in this establishment is carried on both night and day, and at night the works are lighted by two 6,000 candle-power arc lights, provided by a Siemens' A dynamo, driven by a 4-HP. Tangye engine. There is also telephonic communication with Pozo Almonte, the nearest telegraph station to Iquique, 17 miles from Ramirez.

[The Paper is accompanied by several drawings, from which Plate 7 and the figure in the text have been engraved.]

PLATE 7.

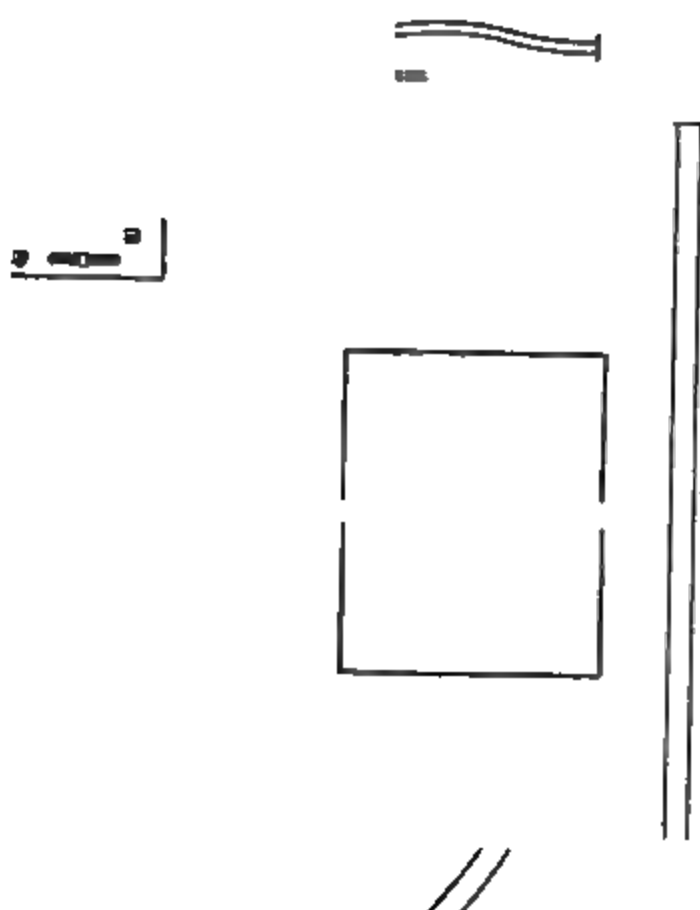


PLATE 7. 001530

PLATE 7. 001530

PLATE 7. 001530

PLATE 7. 001530





## Monthly Meetings

### OF THE

## Royal Institution of Cornwall.

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A series of Monthly Meetings was held at the Rooms of the Institution during the last winter, chiefly devoted to subjects of Natural History, for the study of which a society has been formed amongst the Members. The Lectures excited much interest, and were well attended.

At the first of these Meetings, which took place on 2nd February, 1887, MR. J. SNELL read a paper "On Ferns, past and present." He described the structure and histology of the spore, sporangium, and the prothallium, making reference to the doctrine of the alternation of generations as illustrated in the life history of a fern. The Herbarium of the Institution was noticed as possessing specimens of every British Fern, and the Geological collection as furnishing examples of the ferns of past epochs.

*February 21st, 1887.*

DR. RUNDLE gave a paper "On the instincts of fishes and other aquatic creatures." In the course of his remarks, he referred to the various wonderful instincts to be found in fishes and other aquatic creatures, instincts which impelled them to use various weapons and appliances for divers purposes:—to capture prey, and as a means of protection against their foes. He described the manner in which fishes and other marine creatures put to their respective uses their weapons and appliances;—some, like the sea anemones, hang out tendrils similar to a net, and await the approach of their prey. At the moment this takes place these tendrils are entwined around the unsuspecting victim, a poison is secreted which has a benumbing influence, and in a few moments an easy capture is effected.

Others are armed with fishing lines, such as the Portugese men-of-war, which have filaments of considerable length, and any creatures coming in contact with their lines are immediately overcome by a subtle poison. Then there is a crab, called the tree crab, which has the singular habit of quitting its native element, and betaking itself to climbing the cocoa-nut tree. In South America there are crabs which pick up pebbles and drop them with great dexterity between the open valves of the oyster's shell. The oyster being unable to close its shell, falls an easy prey to the wily crab. Among fishes proper are found many curious examples; the pilot fish accompanies the shark and is said to have the wonderful instinct of piloting the shark to its prey. The sucking fishes have a disc on their heads with which they attach themselves with great force to any object, and are often thus transported by ships and even by sharks great distances. The Archer fish has the power of ejecting a drop of water with its lips and bringing down a fly at a distance of two feet. The Electric fish, with its powerful electric stroke, paralyses its prey, whilst the Foe anglers entrap their prey with their complicated fishing apparatus.

*March 7th, 1887.*

MR. J. H. JAMES read a paper on the "Land and Fresh Water Mollusca of Truro and Newquay and their neighbourhoods." He prefaced his list of captures by a short account of the division of the Animal Kingdom to which these Molluscs belong, the mode of formation and coloration of the shell, the dentition and other particulars connected with the life-history of the snail. He exhibited many species and varieties found by him at Truro and Newquay, some of which were new to the County, and one or two of them had not hitherto been supposed to be found in Great Britian. The several genera and families were nicely illustrated by characteristic coloured drawings, by Miss M. M. Whitburn.

Mr. James stated that the list of Land and Fresh Water Shells of Great Britian and Ireland, prepared by the Conchological Society, contained 130 species and 308 varieties.

Mr. Marquand's list of Land and Fresh Water Mollusca of West Cornwall, published in the proceedings of the Penzance

Natural History Society, in 1884, contained 78 specimens and varieties.

Mr. James has found in Truro and Newquay 42 species and 54 varieties, viz:—In Truro 37 species and 30 varieties, and at Newquay 27 species and 29 varieties.

The collecting at Newquay was done during the autumns of 1884 and 1886, and that at Truro engaged him for nearly 3 years. It is hoped that others will take up the subject and collect in the towns and neighbourhoods in which they reside, and that thus a very good record of Cornish specimens may be furnished.

It is proposed to publish a list of Land and Fresh Water Mollusca of Truro and Newquay in the proceedings of the Society. Mr. James's List of Newquay shells was published in the Conchological Journal of the present year.

*March 21st, 1887.*

MR. CHARLES BARRETT gave an evening with the Microscope, and much interest was shewn in examining his excellent collection of Microscopic slides, which illustrated the minute structures of animal and vegetable life.

*April 4th, 1887.*

MR. CHARLES KENT gave a brief outline of the "natural history of the Honey Bee," his remarks being illustrated by diagrams and specimens of bees and honey comb. He pointed out the most interesting features connected with the construction of the bee, such as its simple and compound eyes, its breathing apparatus, and the wonderful formation of its wings. The latter he showed consisted of four wings, which by an arrangement of hooklets were formed into two large wings when extended for the purpose of flight. The means of reproduction were also touched upon, and the wonderful productiveness of the Queen bee shown by extracts from well-known authors. He next pointed out the important part played by bees in the fertilization of flowers, and in conclusion he showed how bees could be best kept with a view to pleasure and profit.

*April 18th, 1887.*

MR. THOMAS CLARK read a paper "On the Igneous Rocks of Cornwall, suitable for building purposes," and dwelt particularly on the diorites, gabbros, granites, and other felspathic rocks, pointing out their qualities, mineral characteristics, microscopic aspects, and their behaviour under the polariscope. Especial reference was made to the Duporth and St. Mewan rocks.

This interesting session was brought to a close on the 2nd May, 1887, when the Members gave a conversazione, which was well attended, and subjects of much interest relating to objects in natural history occurring in the immediate neighbourhood of Truro, were brought to the notice of the Meeting. Specimens also of interesting objects were exhibited, and amongst them Mr. J. Snell showed a fine specimen of the *gorgonia verrucosa*. Mr. J. H. James exhibited a collection of shells illustrative of the various genera in conchology; Mr. Blenkinsop some rare plants, and Mrs. Paull of Bosvigo a beautiful collection of otoliths. Before separating, the thanks of the society were especially given to Mr. J. Snell and Mr. J. H. James, who were the organizers of the society, and on whom devolved the arrangements for the meetings. It was decided that a series of excursions for furthering the objects of the society should be made by land and water during the summer months.

# Royal Institution of Cornwall.

FOUNDED 1818.

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Vice-Patron.

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Corresponding Secretary for East Cornwall,

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Librarian and Curator of Museum,

MR. H. CROWTHER, TRURO.



## Royal Institution of Cornwall.

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### 69TH ANNUAL GENERAL MEETING.

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The Annual Meeting of the Royal Institution of Cornwall was held on Nov. 22nd, 1887, at the Rooms of the Institution, the Revd. W. Iago, B.A., in the chair. There were also present the Revds. Canon Moor, Canon Cornish, and A. R. Tomlinson; Dr. Jago, F.R.S., Messrs. H. M. Jeffery, F.R.S., J. Tremayne, R. Foster, N. Whitley, F.R.M.S., W. J. Johns, H. S. Leverton, Robt. Tweedy, S. Pascoe, C. R. Parkyn, E. Rundle, W. J. Clyma, T. A. Cragoe, A. Blenkinsop, T. Hawken, C. Barrett, T. Clark, W. J. Criddle, J. C. Furniss, J. Snell, Hamilton James, and Major Parkyn, Hon. Sec.

The Minutes of the last meeting having been read and confirmed,

The Secretary read the report of the Council, as follows:—

#### REPORT OF THE COUNCIL.

The Council of the Royal Institution of Cornwall in presenting their 70th Annual Report and Balance Sheet for the year ending the 31st of July, 1887, have pleasure in stating that they are able to point to the generally prosperous condition of the Society. The obituary for the past year includes two names only, viz., those of Mr. Robert Hunt, F.R.S., and Mr. Robert Symons. Mr. Hunt so well known in Cornwall for his writings relating to our mines and to the general literature of the county, was elected an honorary member of this Institution in 1863. Mr. Symons had been a subscriber for a great number of years and had contributed several papers to the Journal, including one on the Alluvium in the Par Valley, and another on the Carclaze Tin and China-Clay Pit.



The income for the present year amounted to £203 13s. 11d. The balance in hand at the close of last year (31st July), was £186 3s. 9d. The expenditure £355 18s. 6d., leaving a credit balance of £23 19s. 2d.

The number of members remains nearly the same as last year—four members have retired, and three new subscribers have joined.

The long desired and much needed work of renovating and embellishing the interior of the Museum has been accomplished by the outlay of about £100. The time thus necessarily occupied extended over several weeks, and arrangements were so made as to interfere as little as possible with the admission of visitors. The work has been done to the entire satisfaction of the Council, and the brightness and freshness of the rooms, together with the improved appearance of the interior generally, have added much to the pleasure of an inspection of the many objects of interest contained in them. No doubt the number of visitors was slightly diminished for the two or three months during which the work was in hand, but it is with satisfaction that the Council find there is no diminution in the interest of the public in the collection.

The admissions during the past year will bear favourable comparison with those of preceding years, and were as follows:—

Admitted free .. .. .	2264
By ticket .. .. .	52
By payment (6d. each) .. ..	409
	<hr/>
	2725

The Library has continued to receive attention, and the long arrears of work connected with it may now be said to have been overtaken. The current numbers of the Journals and Transactions of the various societies which exchange publications with our own society, have been bound as quickly as possible to prevent numbers being missed. The excellent catalogue of the books is a great boon to readers and much facilitates their researches. Valuable additions to the library by gifts and purchase have been made during the year. In particular the very handsome present of Tonkin's, Whitaker's, and other MSS. relating to the Antiquities and Natural History of Cornwall,

made by Mr. G. L. Basset, of Tehidy, in the month of April was a very important acquisition. These MSS. supplementing those already in the Museum will enable the Institution hereafter, if thought desirable, to publish the collection of records in a much more complete form than otherwise could have been done.

Mention should also be made of the books and documents known as the Taunton MSS., which were generously presented by Mr. H. S. Stokes, a former member of the council.

The Society also feels under an obligation to Sir Warrington W. Smyth, F.R.S., for obtaining from the Council of the Geological Society of London several back volumes of their Journal which were required to complete the set on our shelves.

Perhaps the most important purchase was that of the 1st and 2nd volumes of Tonkin's Manuscript Parochial History of Cornwall, acquired at a cost of £75 18s. The 3rd volume of this work being previously in the possession of the Society, (presented by the Revd. F. W. Pye, rector of Blisland), it was thought highly desirable to secure the earlier volumes.

At the sale of Mr. Borlase's effects, which took place in October last, at Penzance, the President and Secretary, deputed by the Council, secured for the Museum some typical specimens of Cornish Antiquities, including the remains of the Angrowse Urn with its Bronze Dagger, portions of the Denzell, Ballowal and Ohycarne Urns, the beautiful fragment from Morvah Hill Barrow, the miniature Urn from Escolls Cliff, parts of the Boscregan Urns, one strangely inserted within another; Pottery from Fogous or Cave Dwellings, Antique Whetstones from the ancient graves, Schills from mines, mediæval Ridge Tiles and other objects of interest, also some volumes of Mr. Borlase's Manuscript Notes, Plans, and Drawings, illustrating his explorations, &c. Other objects, purchased at the sale by Mr. John Burton a well-known resident in Falmouth, were presented by him to the Museum, and the Council desire to express their obligation to him.

A want long-felt by the members of our society who have occasion to refer to the published Reports and Journals, is a good General Index of their contents, and there is reasonable hope that by the Secretary's help this will be met.

The Meteorological Observations have been carefully registered by Mr. Newcombe, and are regularly published and compared with those from other parts of England by the Registrar General in connection with the Royal Observatory at Greenwich. These observations have been recorded by this Society for a period approaching half a century, beginning as far back as 1840, and during the greater part of this long succession of years the work has been done by its curator, above-named.

Of earlier date we have two volumes of registers which were presented to this Institution by the late Mrs. Gregor of Trewarthenick, recording observations ranging from 1765 to 1782. Next we have the register kept by Mr. James of Redruth, recording the years between 1787 and 1806—then we have those of Mr. E. C. Giddy dealing with the period between 1807 and 1827, which are closely followed by Mr. Moyle's at Helston, continuous subsequently with our own. Thus it is seen that we possess a record of unusual length relating to our district, which must be of great value in arriving at an approximate estimate of the climate of Cornwall.

The Dies for the Henwood Medal were purchased on 8th July of the present year; the first medal, therefore, will have to be awarded within the next 3 years. The medal is to be of gold and to be intrinsically worth more than ten guineas, and may be competed for by members and non-members alike. The written composition which is to win the prize must be original, and relate to one or other of the following subjects: Geology, Mineralogy, Mining Operations, Botany, Ornithology, Ichthyology, Conchology or Antiquities of Cornwall. The paper may be illustrated, if necessary, and must be presented to the Council of the Institution in time for publication, if they think fit, in some number of the Society's Journal to be issued within the period named.

The next number of the Journal will it is hoped appear without delay, as the whole of the matter is now in type. It will contain papers of much local interest and will it is believed be found well worthy of its predecessors.

The visit of the Geologists' Association of London to this city, in August last, should not be passed over in silence. Upwards of fifty of its members under the guidance of its President, Mr. F. W. Rudler, F.G.S., and accompanied by several ladies, were received in the rooms of this Institution, on Monday, the 8th August, at 9.30 a.m., by Mr. Whitley, Mr. Howard Fox, Mr. Hamilton James, Major Parkyn, Hon. Sec., and some others, and were conducted over the Museum. In the evening the council entertained the Members of the Association at a *conversazione* which was presided over by the President, Revd. W. Iago. A very pleasant evening was spent and short addresses were given by Revd. W. Iago, Mr. H. M. Jeffery, F.R.S., Mr. E. A. Wunsch, F.G.S., Mr. Tweedy, and others. Before separating the President of the Geologists' Association said the kind and generous reception afforded to them by the Royal Institution of Cornwall at the meeting in the morning, and again at the *conversazione* that evening, had given them all a most favourable impression of Cornwall and her people. He felt greatly indebted to the gentlemen who, in their excellent addresses, had imparted to them so much valuable information, which would be of the greatest service to them during the coming week. He was sure that every member of the party would on his return home look back with the greatest pleasure to the very agreeable evening which had now come to a close. In the name of the ladies and gentlemen accompanying him as excursionists he thanked the President and Council of the Royal Institution of Cornwall most heartily and sincerely for their great kindness and hospitality.

The Annual Excursion took place on Tuesday, the 30th August. The route selected was from Bodmin to Brown-Willy by Pendrief and the Georgian Jubilee Rock, returning by way of Temple. A large party, numbering upwards of 50, under the guidance of the President, Revd. W. Iago, started from Bodmin Station in several well-appointed carriages. After passing Blisland, Pendrief Farm was reached where stands the famous Jubilee Rock, a memorial not only of King George III in honor of whose long reign it was sculptured, but of Lieut. John Rogers its sculptor. It is an enormous boulder weighing at least 150 tons lying on the open moor with three of its four

sides exposed to view, the fourth being embedded in the hill side. Lieut. Rogers a native of Pendrief, conceived the idea of carving the Royal Arms and other devices and inscriptions in memory of King George III's Jubilee. On the upper face are the Royal Insignia and inscription G. III. R, 1810. The front face bears the figure of Britannia and also the arms of the Duke of Cornwall, &c. On the two other sides are the arms of a former Lord Falmouth and the late Sir Arscott Ourry Molesworth. A small brass tablet which was let into the stone records the name of the author of the memorial and contains some loyal verses.

The Rock having been thoroughly examined, and cheers given for the Queen, a start was made for Fernacre a farmstead at the foot of Brown-Willy. Beside the route could be seen the celebrated De Lank Quarries which had furnished the granite with which the new Eddystone Lighthouse had been built, and soon the wild moor was entered. "Arthur's Hall," an oblong enclosure, and other prehistoric relics were inspected, also a large circle of stones at the foot of Roughtor. Luncheon was served beside the clear waters of a little stream, after which the Rev. A. H. Malan read an interesting paper on the curiosities and antiquities of the locality, which will no doubt find a place in our Journal.

The ascent of Brown-Willy was next undertaken, the highest point of which is 1364 feet above the level of the sea, being 72 feet higher than Roughtor. The view obtained was a grand one, but did not extend to the more distant objects sometimes within view, such as Rame Head, the Dodman, St. Agnes Beacon, Lundy Island, and the hills of Devon and Somerset.

The return journey across the wild moors was then begun and all speed was made for Temple, where there was a halt to inspect the little Church which has been restored by the Revd. J. R. Brown of Helland, who kindly shewed the party over the edifice. An hour's ride brought the excursionists back to Bodmin, where an excellent dinner awaited them at the Royal Hotel; the chair was taken by the President, who was supported by Mr. H. M. Jeffery, F.R.S., Vice-President, and by Mr. Stokes, Clerk of the Peace. After spending a pleasant hour a move

was made for the New Railway Station, where cordial leave-takings brought a pleasant day to a close.

The Monthly Meetings held during the winter evenings proved to be of more than ordinary interest, a series of valuable communications having been read on Natural History. The Session opened on 2nd Feb., 1887, with a paper by Mr. J. Snell, on "Ferns past and present." On the 21st of the same month, Mr. Rundle read one, on "The instinct of Fishes and other Aquatic Creatures." On 7th March, Mr. J. H. James described "Land and Fresh Water Mollusca of Truro, Newquay, and their neighbourhoods." On 21st March, Mr. Charles Barrett gave an evening with the microscope; on the 4th April, Mr. Chas. Kent gave a brief outline of "The Natural History of the Honey Bee;" and the session was brought to a close on 18th April, by a paper on "The Igneous Rocks of Cornwall suitable for building purposes," by Mr. Thomas Clark.

The Revd. W. Iago's two years' tenure of office expiring to-day, your Council have pleasure in proposing Mr. John Tremayne as his successor, feeling sure that he will by his well-known ability and beneficial influence advance the interests of the Society.

The following are nominated as Vice-Presidents: Dr. Jago, F.R.S., Revd. Canon Moor, M.R.A.S., Mr. H. M. Jeffery, F.R.S., Sir Warington W. Smyth, F.R.S., Revd. W. Iago, B.A. (L.S. Soc. Ant.)

And, as other members of the Council, Revd. Canon Cornish, Mr. Howard Fox, Mr. Hamilton James, Mr. H. S. Leverton, Rev. A. H. Malan, Mr. R. M. Paul, Mr. E. G. Spry, Revd. A. R. Tomlinson, Mr. Tweedy, and Mr. Whitley. As Treasurer, Mr. Arthur Willyams; and as Secretaries, Mr. H. Michell Whitley, and Major Parkyn.

The following Balance Sheet has been prepared by our Treasurer.

**Dr. R. J. G. Williams, Treasurer, in support with the Royal Institution of Cornwall. Cr.**

[illegible]

On the motion of Mr. Tweedy, seconded by the Rev. A. R. Tomlinson, the report was received, adopted, and ordered to be printed.

The Chairman expressed his thanks for the kindness shown him during the two years he had been president. The first year he was absent very much through illness, but during the past year he was happy to say he had been restored to health, and all matters of importance had come before them in the second year and not in the first. He now had pleasure in asking Mr. John Tremayne to take the chair as their new president, and to conduct the remainder of the proceedings. No eulogy of Mr. Tremayne was necessary, as he was so well known, and they might congratulate themselves on the fact that Mr. Tremayne was now their president.

Mr. Tremayne, in taking the chair, said he must thank them for the compliment they had paid him in asking him to occupy the position which he now did as their president. When asked to take the position he feared that if he accepted they would find him a square peg in a round hole. He felt he was nothing more than an ordinary country squire and was not qualified to assume a leading position among men of literary and scientific research such as he had the pleasure of seeing before him that day. It was only, therefore, as a country gentleman that he accepted the office, and as a Cornishman feeling an interest in all things relating to the welfare and advancement of Cornwall that he stood before them. His position was a difficult one and more especially was it so as he had to follow Mr. Iago, a gentleman whose qualifications were such as few gentlemen who occupied the chair of that institution possessed.

The following list of Presents since the Spring Meeting, held on Monday, June 6th, 1887, was then read :—

TO THE LIBRARY.

Bath ... ..	Proceedings of the Bath Natural History Society and Antiquarian Field Club.	From the Club.
Birmingham...	Proceedings of the Birmingham Philosophical Society.	The Society.
Bristol ... ..	Proceedings of the Bristol Naturalists' Society, Vol. 5, Part 2.	The Society.
Ditto ... ..	Transactions of the Bristol and Gloucester Archaeological Society.	The Society.



Denver ...	...	Proceedings of the Colorado Scientific Society, Vol. 2.	The Society.
Dublin ...	...	Journal of the Royal Historical & Archaeological Society of Ireland, Vol. 8, No. 74	The Society.
Ditto ...	{	Transactions of the Royal Irish Academy No. 4. „ the Cunningham Papers,	The Academy.
Ditto ...	{	Proceedings of the Royal Irish Academy— Polite Literature. Proceedings of the Royal Irish Academy— Science.	The Academy.
Ditto ...	...	Journal of the Royal Geological Society of Ireland.	The Society.
Edinburgh ...	...	Proceedings of the Royal Physical Society of Edinburgh.	The Society.
Ditto ...	{	Transactions of the Edinburgh Geological Society, Vol. 5. „ „ Catalogue of Library ...	The Society.
Eastbourne ...	...	Transactions of the Eastbourne Natural History Society.	The Society.
Falmouth ...	...	Annual Report, 54th, of the Royal Cornwall Polytechnic Society.	The Society.
Gloucester ...	...	Transactions of the Bristol and Gloucester Archaeological Society.	The Society.
Glasgow ...	...	Proceedings and Transactions of the Natural History Society of Glasgow, Vol. 1, Part 3.	The Society.
Ditto	...	Proceedings of the Philosophical Society of Glasgow, Vol. 18.	The Society.
London ...	...	Monthly Notices of the Royal Astronomical Society.	The Society.
Ditto ...	...	Quarterly Return of Marriages, Births, and Deaths in England.	Registrar General.
Ditto ...	...	Proceedings of the Zoological Society of London.	The Society.
Ditto ...	...	Memoirs of the Royal Astronomical Society, Vol. 49, Part 1.	The Society.
Ditto ...	...	Proceedings of the Society of Antiquaries of London.	The Society.
Ditto ...	...	Journal of the Society of Arts.	The Society.
Ditto ...	...	Quarterly Journal of the Geological Society of London.	The Society.
Ditto ...	...	Transactions of the London and Middlesex Archaeological Society.	The Society.
Ditto ...	...	Publications from the Patent Office, London	Patent Office.
Ditto ...	{	Y Cymmrodor. The Gododin of Aneurin Gwawdrydd, Part 4 Proceedings of the Cymmrodorion section of the National Eisteddfod of 1887.	The Society.

London ...	Proceedings of the Welsh Educational Conference held at Shrewsbury.	The Conference.
Ditto ...	Greenwich Observations, 1885.	Astronomer Royal.
Ditto ...	Journal of the Anthropological Institute of Great Britain and Ireland.	The Institute.
Ditto ...	Proceedings of the Geologists' Association	The Association.
Liverpool ...	Annual Report, 50th session, of the Liverpool Polytechnic Society.	The Society.
Ditto ...	Proceedings of the Liverpool Literary and Philosophical Society.	The Society.
Ditto ...	Transactions of the Liverpool Engineering Society.	The Society.
Leeds ...	Annual Report of the Leeds Philosophical Society for 1886-87.	The Society.
Manchester ...	Transactions of the Manchester Geological Society.	The Society.
Newcastle-on-Tyne	Transactions of the North of England Institute of Mining and Mechanical Engineers.	The Institute.
New York ...	Transactions of the New York Academy of Sciences, Vols. 1, 2, 4, 5, and 6.	The Academy.
Penzance ...	Transactions of the Royal Geological Society of Cornwall.	The Society.
Ditto ...	Penzance Natural History & Antiquarian Society, 1886-87.	The Society.
Plymouth ...	Annual Report (10th) of the Plymouth Free Public Library.	The Publishers.
Ditto ...	Annual Report and Transactions of the Plymouth Institution, Vol. 9, Part 3.	The Institution.
Philadelphia...	Transactions of the Wagner Free Institute of Science, Vol. 1.	The Institute.
Ditto ...	Proceedings of the Academy of Natural Sciences of Philadelphia.	The Academy.
S.Petersburg	Bulletins du Comité Geologique. S. Petersbourg.	Russian Government.
	Supplement du Comité Geologique. S. Petersbourg.	
	Die Fauna des Mittleren und Oberen Devon am West-Abhange des Urals.	
	Die Pflanzenreste im Osten des Europäischen Russlands.	
	La Presqu'île de Samara et les Gegoules Etude Geologique.	
Taunton ...	Memoires du Comité Geologique, Vol. 4, Part 1.	The Society.
	Proceedings of the Somersetshire Archaeological and Natural History Society.	
Tiverton	Report and Transactions of the Devonshire Association, Vol 19.	The Association.
	The Devonshire Domesday, Part 4.	

Tuckingmill ...	Transactions of the Mining Association and Institute of Cornwall.	The Association.
	Monthly Weather Review.	
United States of America	Summary and Review of International Meteorological Observations.	Government of the United States of America.
	Monographs of the United States Geological Survey, Vol. 10.	
	Mineral Resources of the United States—Geological Survey, 1886.	
	Smithsonian Report, 1885, Part 1.	
	Geological Survey, 6th Annual Report.	
Vienna ...	Annalen des K. K. Naturhistorischen Hofmuseums Band 2, Nos. 2, 3, and 4.	Austrian Government.
Welshpool ...	Archæologia Cambrensis, Nos. 14, 15, 16, and 17.	
Ditto ...	Collections Historical and Archæological relating to Montgomeryshire.	Powys Land Club.
<hr/>		
Bonython ...	The Forest Flora of South Australia Parts 4, 5, 6, 7 & 8.	J. Langdon, Bonython, Adelaide.
Foster ...	Report on the Mining Industries of the British Colonies, by C. Le Neve Foster, B.A., D.Sc.	C. Le Neve Foster.
Collins ...	Cornish Tin Stones and Tin Capels, by J. H. Collins, F.G.S.	J. H. Collins, F.G.S.
	Industrial Review.	The Publishers.
Donald Currie	The Castle Line Guide to South Africa.	Donald Currie.
Kitto ...	Tables of Sea Temperature, Bright Sunshine and Climate of Falmouth, 1886.	E. Kitto.
Rundle ...	Life of Dr. Thomas Rundle, Bishop of Derry 1735-43.	Rev. S. Rundle, M.A., Vicar of Godolphin.
Tregellas ...	Professional Papers of the Corps of Royal Engineers, Vol. 12, Paper 2 Historical Sketch of the permanent Coast Defences of England.	Walter H. Tregellas
Tweedy ...	Journal of the Royal Geographical Society of London, 11 Vols. (1 to 11).	Robert Tweedy.
	Transactions of the Royal Geological Society of Cornwall, Vol. 5.	
Worth ...	Calendar of the Tavistock Parish Records by E. N. Worth, F.G.S.	E. N. Worth.
Pearce ...	Notes on a new occurrence of Copper Arsenates and Associated Minerals in Utah.	Rich. Pearce, F.G.S., Her Brit. Majesty's Vice-Consul, Denver.
Emmons ...	Notes on the Geology of Butte, Montana, by S. F. Emmons, U.S. Geological Survey.	E. Pearce, F.G.S.

TO THE MUSEUM.		Presented by
Burton ...	{ The Gwinear Celts and other objects of Antiquity. Model of Stonehenge. ... .. One of Fairfax's Cannon Balls. ... ..	J. Burton, Falmouth.
Thomas ...	... Portion of an Ancient Mill Stone. ... ..	Mr. G. Thomas.
Borlase ...	{ The Angrowse Urn with its Bronze Dagger Portions of the Densell, Ballowal and Chycarne Urns. A beautiful fragment from the Morvah Hill Barrow. Miniature Urn from Escolls Cliff ... .. Parts of the Boscregan Urns. ... .. Pottery from Fogous or Carne Dwellings. Antique Whetstones from Ancient Graves Schills from Mines. ... .. Mediæval Ridge Tiles.... ... ..	Purchased at the Borlase Sale.
Iago ...	{ Portrait of Late Rev. R. S. Hawker .. Portrait of Mr. H. S. Stokes ... ..	Rev. W. Iago.

## BOOKS PURCHASED.

Western Antiquary.  
 Symons's Rainfall Magazine.  
 The Ray Society.  
 The Palæontographical Society.  
 Journal of the Meteorological Society.  
 Nature.  
 The Zoologist.  
 Knowledge.  
 Geological Record.  
 Warner's Tour in Cornwall.  
 Herbs of the Field—C. M. Yonge.  
 Laws of the Stannaries of Cornwall made at the Convocation or Parliament of  
 Tinnars, at Truro, Sept 13, Anno. 27<sup>o</sup> Geo. II.  
 Venning's Directory: Map and Antiquities of East Cornwall.  
 Bibliotheca Cornubiensis, 3 vols.  
 Manuscript Notes, Plans & Drawings illustrating Mr. W. C. Borlase's explorations.  
 The Laregan Museum Catalogue.  
 Science Gleanings: Studies in Natural History—J. Gibson.

The following papers were also read:—

"The Sub-marine Forest at Portmellin, near Mevagissey."  
 —N. Whitley, F.R.M.S.

"Priors of Tywardreath in the 12th Century."—W. Sincock.

"John Mayow, chemist and physician."—J. J. Beringer,  
 F.C.S.

"Ancient Chapel at St. Mawes."—H. M. Jeffery, F.R.S.

Mr. R. Foster, M.A., moved that the thanks of the society  
 be given to the officers and council for their services during the

past year, and that the president, vice-presidents, and others named, be the council for the ensuing year as recommended in the report.

Mr. W. J. Criddle seconded the motion, which was unanimously carried.

Mr. W. J. Johns (the Mayor of Truro) moved a vote of thanks to the gentlemen who had favoured the society with papers or other communications, and the donors to the Museum.—Mr. S. Pascoe seconded, and it was carried unanimously.—The Rev. Canon Cornish proposed a vote of thanks to the president. He was sure they felt that an impetus was given to their work by having such a gentleman at their head—Mr. T. A. Cragoe seconded the resolution, which was carried.—The President, replying, said he was obliged for their kindness, but he must crave their indulgence for many shortcomings. It would have given him and Mrs. Tremayne the greatest pleasure to have been at their conversazione in the evening, but the state of his health precluded it. As far as he was able, however, during his tenure of office, it would be his wish and desire to further the objects of the Institution as far as he was able to do so.

The annual Meeting was followed by the usual *Conversazione* in the evening, when an interesting paper, by the Rev. S. Rundle, vicar of Godolphin, Helston, on “*Cornishisms in Ancient Literature*,” from the 10th century to 1689, was read. The paper was one of considerable research, the chapters and pages of the works in which the words commented on occur being all given. The paper was read by Mr. E. Rundle, of the Royal Cornwall Infirmary, Truro, and was followed by a discussion.—The Rev. W. Iago gave an interesting and amusing *resumé* of the annual excursion which took place in August last. His remarks on the celebrated Jubilee Rock contained much information, which was quite new to the audience.

Mr. Hamilton James followed with an account of Stonehenge, and, with the assistance of the beautiful model which was generously presented to the society by Mr. John Burton, of Falmouth, was enabled to give a most interesting and graphic description of this remarkable monument.

Summary of Meteorological Observations at Truro, in Lat. 50° 17' N., Long. 5° 4' W., for the year 1887,  
from Registers kept at the Royal Institution of Cornwall.

TABLE No. 1.

METEOROLOGY.

MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																			
1887.	Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum in observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any consecutive 24 hours.	Between which days it occurred.
		9 a.m.	8 p.m.	9 p.m.															
	January	30.003	29.980	29.980	29.988	.004	29.984	.232	29.752	30.708	21	28.859	7	0.849	.098	.44	3	.54	19 & 20
	February	30.238	30.236	30.236	30.237	.003	30.234	.199	30.035	30.647	7	29.760	2	0.887	.077	.27	25	.34	3 & 4
	March ...	30.130	30.116	30.086	30.111	.007	30.104	.206	29.898	30.643	2	29.488	23	1.155	.091	.38	21	.38	25 & 26
	April .....	30.030	30.020	30.028	30.026	.004	30.022	.218	29.804	30.676	17	29.320	23	1.356	.080	.34	24	.44	2 & 3
	May .....	30.074	30.035	30.061	30.057	.003	30.054	.286	29.768	30.488	8	29.528	2	0.960	.086	.28	1	.46	1 & 2
	June .....	30.203	30.208	30.200	30.204	.001	30.203	.364	29.839	30.451	11	29.720	2	0.731	.043	.14	8	.20	3 & 4
	July .....	30.076	30.050	30.066	30.064	.002	30.062	.459	29.603	30.336	1	29.510	26	0.826	.074	.26	27	.36	25 & 26
	August ...	29.996	29.930	30.013	29.999	.004	29.995	.422	29.573	30.346	3	29.566	31	0.780	.065	.22	17	.29	25 & 26
	Sept. ....	29.943	29.940	29.943	29.942	.004	29.938	.343	29.595	30.483	29	29.330	29	1.153	.101	.46	7	.56	7 & 8
	Oct.....	30.140	30.113	30.128	30.127	.006	30.021	.257	29.864	30.568	25	29.560	30	1.008	.090	.45	3	.45	3 & 4
	Nov. ....	29.686	29.670	29.673	29.676	.004	29.672	.228	29.444	30.289	16	28.770	3	1.519	1.011	.36	4	.60	2 & 3
	Dec. ....	29.880	29.858	29.860	29.866	.003	29.863	.218	29.645	30.460	2	29.300	14	1.160	.110	.41	2	.59	5 & 6
	Means ...	30.033	30.018	30.023	30.025	.004	30.021	.286	29.735	30.508		29.393		1.033	.085	.33		.35	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glaisher. The corrections for Index Error (+0.008), Capillarity (+0.018), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2

1887.		MONTHLY MEANS OF THE THERMOMETER.																								
Month.	9 a.m.		3 p.m.		9 p.m.		MASON'S HYGROMETER.								SELF REGISTERING.						ABSOLUTE.					
	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.
January	41.0	39.0	45.5	43.0	42.7	41.0	43.1	0.4	42.7	41.0	0.1	40.9	2.0	38.4	4.5	45.0	37.0	41.0	0.2	46.8	8.0	55.0	28	24.0	2	31.0
February	41.5	40.0	46.0	42.4	41.0	39.1	42.8	0.6	42.2	39.1	0.4	38.7	3.5	34.4	7.8	49.0	37.0	43.0	0.4	42.6	12.0	56.0	5	29.0	13	27.0
March	40.0	37.4	46.2	41.9	40.0	37.8	42.1	1.5	40.6	39.0	0.7	38.3	2.3	35.3	5.3	50.0	32.4	41.2	1.0	40.2	17.6	62.0	30	22.0	14	40.0
April	46.8	42.3	51.3	40.4	44.3	41.4	47.5	2.2	45.3	42.7	1.4	41.3	4.0	36.7	8.6	54.9	35.2	45.0	1.5	43.5	19.7	64.0	12	25.0	15	39.0
May	53.0	49.0	56.0	50.4	51.0	49.0	53.3	2.3	51.0	49.5	2.1	47.4	3.6	43.8	7.2	59.9	43.8	51.8	1.7	50.1	16.1	66.0	9	34.0	7	32.0
June	65.3	57.9	68.8	58.7	59.7	55.9	64.6	3.0	61.6	57.5	2.0	55.5	6.1	50.2	11.4	73.6	49.3	61.4	1.8	59.6	24.3	86.0	16	40.0	23	46.0
July	68.0	61.8	71.2	62.8	63.4	60.7	67.5	2.2	65.3	61.8	1.3	60.5	4.8	56.6	8.7	73.8	54.3	64.0	1.9	62.1	19.5	80.0	21	42.0	31	38.0
August	65.6	61.0	68.5	60.5	59.8	57.0	64.6	2.1	62.5	59.5	1.4	58.1	4.4	54.3	8.2	72.0	49.8	60.9	1.7	59.2	22.2	81.0	6	40.0	15	41.0
Sept	57.9	53.0	61.5	55.4	55.5	52.6	58.3	1.7	56.6	53.7	1.2	52.5	4.1	48.6	8.0	63.0	48.0	55.5	1.3	54.2	15.0	67.0	6	34.0	29	33.0
Oct	48.2	44.4	55.0	49.0	47.0	44.6	50.1	0.8	49.3	46.0	0.7	45.3	4.0	41.0	8.3	56.4	39.0	47.7	1.0	46.7	17.4	67.0	1	23.0	26	44.0
Nov.	45.0	41.2	49.4	44.7	43.1	41.0	45.8	0.6	45.2	42.3	0.5	41.8	3.4	37.9	7.3	50.7	38.0	44.3	0.4	43.9	12.7	56.0	1	28.0	16	28.0
Dec	43.7	41.2	46.8	43.4	41.0	39.6	45.5	0.2	45.3	41.4	0.1	41.3	4.0	36.8	8.5	48.8	37.0	42.9	0.6	42.3	11.8	56.0	1	19.0	28	37.0
Means	51.3	47.3	55.5	49.4	49.4	46.3	52.1	1.5	50.6	47.7	1.0	46.8	3.9	42.8	7.8	58.1	41.7	49.9	1.1	48.8	16.4	66.0		30.0		36.0

The Thermometers are placed on the roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1887.		WINDS.																										
Month.		N.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.		
		a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.	a.m.	3 p.m.	9 p.m.
January		1	1	1	5	5	6	3	4	1	4	8	8	4	1	1	8	7	8	3	2	3	3	3	1.8	2.1	1.8	2.0
February		7	7	7	0	0	0	1	1	1	7	6	6	0	0	1	6	7	7	5	1	2	5	5	2.0	2.6	2.0	2.2
March ...		5	5	5	3	4	4	0	0	0	2	2	2	3	1	2	8	7	7	8	3	5	6	6	1.6	2.6	1.6	1.9
April ...		2	3	3	2	3	4	0	1	1	3	3	2	3	3	4	5	4	4	5	6	5	7	7	2.3	2.9	1.9	2.5
May ...		1	0	2	0	7	2	2	2	2	0	1	1	3	1	1	9	9	4	10	7	6	4	7	2.0	2.6	1.8	2.1
June .....		5	9	9	1	1	3	4	5	2	5	4	3	1	1	0	4	4	6	5	4	5	0	1.7	2.2	0.9	1.6	
July .....		0	0	0	2	2	3	6	6	4	13	8	11	2	3	2	4	3	5	2	3	1	4	5	2.3	2.0	1.5	1.9
August ...		3	2	1	3	1	0	8	11	10	1	2	2	2	1	3	10	11	9	2	2	4	2	2.4	2.5	1.4	2.1	
Sept. ....		1	1	2	0	0	0	1	1	0	6	7	6	5	4	6	4	7	8	7	4	3	6	5	2.4	3.0	1.6	2.3
Oct. ....		3	4	3	1	4	3	3	3	1	4	4	4	1	0	1	10	7	8	6	8	7	3	3	1.7	2.4	1.2	1.8
Nov. ....		1	2	4	1	2	4	0	1	2	5	7	5	6	3	3	3	4	4	9	5	0	5	5	1.9	2.3	2.0	2.1
Dec. ....		0	2	3	1	2	1	2	1	1	4	5	5	8	8	7	7	5	7	1	2	1	8	7	2.4	2.6	1.6	2.2
Total ...		29	36	40	19	31	30	30	36	25	54	57	55	98	26	31	78	76	77	55	49	53	65	44	2.0	2.5	1.6	2.1
Means ...		2.4	3.0	3.3	1.6	2.6	2.5	2.5	3.0	2.1	4.5	4.8	4.6	3.2	2.2	2.6	6.5	6.3	6.4	4.6	4.1	4.4	5.4	3.7	0.17	0.21	0.13	0.18

The force of the Wind is estimated on a scale from 0 to 6, from calm to violent storm.







SECTIONS TO ILLUSTRATE THE POSITION OF THE SUB-MARINE FOREST BED,  
AT PORTMELIN, NEAR MEVAGISSEY, CORNWALL.

---

N.

*The Silurian (?) rocks which bound the Valley on both sides Strike N.E. and S.W., and are nearly perpendicular. The top of the beds are crushed and broken; and curved downward to the Valley. At the base of the "Head," a few "Boulders" were seen at A on the Section above.*

# LONGITUDINAL SECTION OF THE VALLEY AND THE COVE.

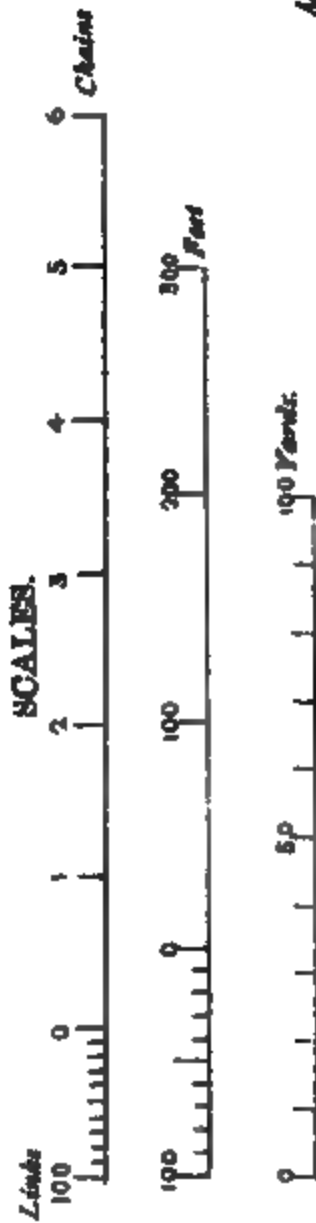
Top of Beach, Highest  
rise of Spring Tides

- France

Low Water - S. T.

12.

Datum 80 feet below High Water - Spring Tides.



Nichols Whittier,  
June, 25<sup>th</sup> 1887.



THE SUBMARINE FOREST-BED AT PORTMELLIN, NEAR  
MEVAGISSEY.

BY N. WHITLEY, F.R.M.S.

---

During the past summer, the surface of a submarine forest-bed has been extensively exposed at spring tides at the little cove of Portmellin, near Mevagissey. This being observed by Mr. Mathias Dunn, he suggested to the Council of this Institution, that an exploration of such an interesting relic of the past, should be undertaken by the Council; it met with their full approval, and preparations were at once made for the work: and I have now to report on the results.

As the remains of the Forest could only be advantageously examined at spring tides, and at certain hours, and in suitable weather, it was found impracticable to muster a large gathering of our members. After several delays I carried out the work with the help of one other member of the Institution (Mr. Rundle), aided by the Rev. D. G. Whitley, and the very effective co-operation of Mr. Dunn, his son, and 5 hired labourers.

The first day was occupied by surveying the cove for the construction of a plan and sections; and by a somewhat superficial examination of the extent and nature of the relics of the forest-bed, by probing it with a 10 feet iron rod and sinking a few pits. On the second day, two large pits each about 10 feet long and 5 feet wide were sunk completely through the forest-bed, that on the north side of the cove to a depth of 11 feet, and that on the south side to a depth of 8 feet, and about 25 yards apart. The excavated portions were carefully examined, and the selected specimens taken to Truro for further investigation; these have since been inspected by several members of the Institution. A general description obtained from the exploration is as follows:—

The surface of the forest-bed exposed to the action of the waves charged with sand, was much waterworn and compact, and

exhibited stems and branches of trees lying in all directions, bedded in a solid mass of leaves, twigs and marsh plants. The leaves often lay flat and fully expanded on each other as the leaves of a book, and exhibited all the details of their structure. When first exposed to the air the whole mass was of a deep brown autumnal colour, but in a week it became as black as charcoal. About 20 hazel nuts fully grown and perfect were picked out from the mass; and also 3 good specimens of beetle-cases or wings, exhibiting blue and green colours of vivid brightness.

The wood, so far as I could judge, appeared to be mainly Birch, Alder, Oak, and Hazel, the whole being matted together by leaves and branches of trees, among which the long fibrous leaves of the common marsh flag were most abundant.

The forest-bed rested on a stratum of light blue clay interspersed with some vegetable matter, and what appeared to be the roots of trees and of the marsh flag. The clay was most pure and tenaceous, and could scarcely be removed from the hands by much washing. At the bottom of the bed it appeared to pass into soil or subsoil with some stones and pebbles.

Such are the main facts revealed by this exploration, and if we attempt to draw inferences from them, we must not ignore the consideration that this local discovery is only a very small portion of an extensive submergence of coast line, and of similar forest-beds to which at present we can place, geographically, no limits.

Similar submerged forest-beds have been found and explored on the shore line of Devon and Cornwall, more especially at the mouths and estuaries of our rivers, and in particular at the following places, namely:—at Torbay, by Mr. Pengelly, F.G.S. and Mr. Pidgeon, F.G.S.; at Blackpool beach, 2 miles west of Dartmouth harbour, at Millendreath near Looe, at Pridmouth near Fowey, and at Par, Pentewan, Mainporth, Falmouth harbour, the Looe bar, Porthleven, Marazion, Newlyn; and on our north coast, at the Hayle estuary, Perranporth, St. Columb Porth, Mawgan Porth, under the Doom bar Padstow harbour, and more largely developed at the mouth of the Torridge and the Taw, in Bideford bay; nor can we stop here, for on the whole coast

lines west and east of the Irish Sea similar deposits are found, and northward even to the Orkney Isles. Again they are found on the whole of the eastern coasts of Scotland and England, and along the Continental shores from the north of Denmark to the western extremity of France.

But the European extent of this submerged vegetation is generally exceeded by that along the whole coast line of northern Asia, extending from the Gulf of Obi to Behring Straits, more particularly at the mouths of the main rivers where beds of vegetable matter are interstratified with alluvial deposits of sand and clay, and carcasses of buried Mammoths and other animals often preserved perfect and entire in the permanently frozen ground,\* so perfect that dogs, wolves, and bears have eaten the flesh of the mammoth, and the tusks of the mammoth are so abundant as to form a productive branch of traffic. It has been calculated that not less than 110,000 lbs. of fossil ivory goes to market every year, so that during the last 20 years the tusks of 20,000 mammoths have been thus utilized.†

The submerged beds rise inland and mingle with the decayed vegetation of the barren Tundra. "The fox hunters hold that when the sea recedes after a long continuance of easterly winds, a fresh supply of mammoth bones are washed up on the banks, proceeding apparently from some vast store at the bottom of the sea."‡

For the origin of such an overwhelming and extensive catastrophe we must look for an adequate cause, the solution of which may probably be best unravelled by the study of our iron bound coast line, and explorations of the Cornish valleys by the workings for stream tin.

It is obvious that these forest-beds were deposited after the rock-bound shore line of Cornwall had received its present outline, and after the land had been rasped down to its present gracefully curved surface at the glacial age, and also, after that surface had been adorned by a profusion of timber, with a climate somewhat similar to that of the present. That in fact

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\*Lyell's Principles of Geology, Vol. 1, p. 184.

†The Mammoth and The Flood, p. 52.

‡Ibid. p. 54.



these submerged forest-beds are comparatively modern deposits, and we can only give them a geological date, mainly by the aid of the evidence derived from the excavations made in our valleys to procure the stream tin.

There is a good evidence to show that these valleys have been completely swept out by a violent and overwhelming flood of water from the north, and that the grains of tin have been deposited on the bare rock and into its pockets and joints, forming with some of the heaviest portions of the gravel in its upper part a stratum from one to five feet deep. This tin bed is invariably covered by a vegetable deposit, similar to that of the submerged forest-bed, especially in respect of the presence of hazel nuts, which abound both in the forest-bed and in the vegetable stratum which uniformly lies on the tin bearing bed, above which the ordinary river deposits alone are found, the whole having a depth of from 50 to 60 feet in the Carnon and Pentewan valleys. Animal remains and some 3 or 4 human skulls have been found at various depths in these upper beds, some of the skulls being within a few feet of the top of the tin ground.

We are forced therefore to the conclusion that the geological age of these submerged forest-beds was after and closely following the deposition of the stream tin, since which the coast line has sunk from 20 to 40 feet.

## THE PRIORS OF TYWARDRETH IN THE 12TH CENTURY.

AN INVESTIGATION OF THE PROBABLE DATE OF THE CHARTER BY WHICH  
THE CHURCH OF S. BREWVERED DE HAMATHETHI WAS GRANTED TO THE  
BENEDICTINE PRIORY OF S. ANDREW AT TYWARDREATH.

BY WILLIAM SINCOOK.

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“The parish of Bruered, *alias* S. Breward, is not named in Domesday; the whole district having been taxed under Hamotedi (Hamatethy), of which great manor we have no doubt this parish formed a portion. The earliest mention we find of a church here is in the time of King Richard I, in whose reign, by an undated deed still extant with its seal appendant, printed by Dr. Oliver in Mon. Dioc. Exon. p. 42, the church of St. Brewvered de Hamthethi was granted to the priory of Tywardreth by William Peverell, then lord of the manor.”\*

“The parish church was originally founded by a lord of the manor of Hamatethy, and anciently appertained to that manor. There is no certain evidence when it was founded. The first record relating to it, so far as we know, is an undated charter, which the learned Dr. Oliver attributes to the reign of King Stephen or Henry II, or a little later. Inasmuch, however, as Robert de Cardinan who was one of the attesting witnesses was alive in 1224, and Hugh Bardolph another witness was sheriff in 1185 and in 1201, and died in 1203, we must conclude that the charter was not made much earlier than the close of the twelfth century. By the charter alluded to, William Peverell granted the church of S. Brewvred to God and the church of S. Andrew, of Tywardreth, and the monks there serving God, for the good of the soul of the said William, the souls of his father and mother, and all his ancestors; in consideration of which gift, Andrew, then prior, and the convent granted to William Peverell and his heirs to have service three times a week in his chapel at Hamathethi from the mother church, whensoever the aforesaid William or his wife should be present there.”

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\* A Parochial History of Trigg Minor, by Sir John Maclean, F.S.A., vol. I, p. 347.

“The manor of Hamatethy was long a portion of the possessions of the family of Peverell, which family held large estates in Cornwall. It appears, from the “*Lib. Rubra*,” one of the earliest records we possess, that about the time of Richard I, Robert De Peverel held 9 Knights’ fees in the county, of the fee of Richard de Lucy, of which it is probable that this manor formed a portion. In the return, 40th Henry III of illustrious men who held lands by military tenure of £15 a year and upwards, 13 only in number, we do not find the name of Peverel, but we have “*Willi. filius Roberti 15li.*” whom we take to be the son of Robert Peverel above mentioned, and identical with William Peverel, who by charter undated, gave the church of S. Brewvered to the priory of Tywardreth.”\*

On examining the charter, besides Andrew, the then prior, I find Osbert was the chaplain of the church of S. Brewerd, “*capellano ejusdem ecclesie*,” and is one of the 34 witnesses to the document. It is very probable that this Osbert was the immediate successor of Andrew, and was the Osbert who witnessed a deed in 1171, as prior, and another deed shortly after with eight of his monks, by which Walter de Wich and Aliz, daughter of Richard de Wich, granted to the priory the right of advowson of Marie de Wich, now Week S. Mary.

There was a prior of the same name at an earlier date, Osbert or Osbern, who witnessed at Bodmin the confirmation of Treneglos church by Bishop Chichester (1138-55) which was also witnessed by William, treasurer of Exeter, who died February 14, 1154.

This Osbert had for his successor, Baldwin, who in 1169, was prior, when Robert Fitz-William, Agnes, his wife, and Robert their son, granted the glebe of St. Austell to the priory.

Andrew, to whom William Peverel granted the church of Hamatethy, seems to have been the third prior, and Osbert (II) formerly chaplain of St. Breward, succeeded as fourth prior, witnessing as above stated, a deed in 1171.

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\* *Hist. Trigg Minor*, vol. I.

The four earliest priors of whom anything is known, stand thus in order :—Priors of Tywardreth.

Anterior to Feb. 14, 1154, Osbert or Osbern.

1169, Baldwin.

1170, Andrew.

1171, Osbert (II).

Hamelin, whose obit. was kept April 1, appears to have been the 5th prior. "At the request of Robert Cardinham he fixed a weekly mass on Saturday, for his departed lady, *ysabella*. This Robert granted a rental of 10/- charged on the manor-mill of Botugi, to the priory." This Robert de Cardinan was alive in 1216, and was the father of Andrew de Cardinan, who was living in 1251, and of Robert de Cardinan, younger son, whose widow *Emma* was living in 1234. He was also the holder of two Baronies in Cornwall, viz.—Cardinan and Botardel, consisting of 71 knight's fees, and signed Peverel's charter, as witness, next to Hugh Bardolph who heads the list.

Between Osbert (II) and Hamelin, occur the names of Theobald, James, and Roger, but, except that Theobald granted several privileges to Fowey, nothing is known of the other two except the days on which their obits were kept, and if these be admitted in the list, Hamelin must be considered the eighth in succession, of whom we have any record, and he may have been the last prior of the twelfth and the first of the thirteenth century.

I will now proceed with the indentification of some of the remaining witnesses, and endeavour to arrive at a fair approximation to the date indicated by the order of succession of the priors.

"By a charter, without date, but which must be very early, Osbert, Prior of Tywardreth, we believe the first of that name, who ruled the Priory about the middle of the 12th century, with the favour and council of the Lord Robert Fitz-William, granted to Baldwin de Pidias (Pridias) one Knight's fee in the manor of Pidias, to hold to him and his heirs, except an acre of land in Carnubel banathel, for which the monks of Tywardreth rendered annually to the said Baldwin, 20<sup>d</sup>. for all customs, &c., as written

in the charter of convention between Ordagar the Canon, and *Richard de Pidias*, father of the said *Baldwin*." (Deed at Wardour Castle, see *Oliver's Monasticon*, p. 41). *Richard de Pidias* again is found as witness to a charter by which Odo, son of Walter de Treverbyn granted certain lands to the Priory of Tywardreth. Also, *circa* 1196, *Richard de Pidias* is a witness to Robert de Cardinan's charter to Lostwithiel. To the charter under examination, are the names of *Baldwin* and *Robert de Pidias*. Odo, son of Trewin, another witness, may be the above named Odo, son of Walter de Treverbyn, and also the same Odo who witnessed the charter to Lostwithiel, as Odo de Penpel. Odo son of Walter, is a witness to the charter of Robert Fitz-William, when Baldwin was prior in 1169, above referred to.

"The pedigree of the elder branch of the ancient house of De Pridias alias Prideaux, as recorded in the Herald's College, gives only the direct line and is very defective in dates."

The earliest historic name having a precise date is that of Nicholas Predieux or de Pridias. In 1182, the Sheriff of Cornwall accounted for half a mark paid to him, the said Nicholas, who had come to London to cross the sea in the King's service. In 1189, he was amerced half a mark for making a false claim, and again in 1195, he was amerced 2<sup>s</sup> for the same cause. Richard de Pridias, *circa* 1196, was probably his son, and the father of Baldwin, who before 1203, witnessed Peverel's charter. Of Robert de Pidias there is no other mention.

There is a contemporary charter without date, a confirmation charter, to the church of Minster of the gift of his ancestors by William de Botreaux, which is of special interest in this case, as it contains among its witnesses, no fewer than five of those who attested the charter in question, and the date of this charter, if ascertained approximately, will assist materially in arriving at the date of the other.

William (I.) de Botreaux the son of Nicholas and Aufre, the son of Ruald, granted to the monks of St. Sergius of Anjou the church of Minster and other lands and tithes. This charter, undated, was confirmed by Bishop Henry Marshall, between 1194 and 1206. William (I) married after 1140, Alice dau. and

coheir of Sir Robert Corbet, and he was dead in 1175. Their son, Will (II.) de Botreaux, married *circa* 1171, Isabella de Say, the Lady of Clune, and died *circa* 1211. The 5 witnesses common to both charters are :—Will. fil. Roberti, Walterus fil. Roberti, Roger de Duneham, Roger Russel, and Luca de Molendino. The fact of Will. fil. Roberti signing as witness, is a proof that he could not have been the grantor, Wm. Peverel, as was supposed. This Botreaux charter I should date *circa* 1206.

There is a Scutage-Roll which may be dated (1196-1204), which contains three of the names of those who witnessed Peveril's charter, viz.—Robert de Cardinan, Richard fil. Juonis. and Lucas fil. Bernardi, who is described in this Roll as Seneschal of Reginald de Valletort, (who lived temp. Rich. I.), and is mentioned in the same Scutage-Roll as holding 51 Knight's fees.

It now only remains to notice the charter of Robert de Cardinan to Tywardreth priory, which contains 5 witnesses common to it and the Peverel charter, viz.—John, Stephen, and Richard, sons of Robert. Roger Russell, Roger son of Lucas, (Nicholas de Haveland, Robert de Karmino, and Henry de Albemara, are found in the charter of Robert de Cardinan to Lostwithiel *circa* 1196).

With regard to *Robert Peverel* who held 9 Knight's fees of the fee of Richard de Lucy, the Scutage-roll is of later date than that above mentioned, and an earlier date than 1213 cannot be assigned to it, as in that year, Archemaund Flandrensis succeeded his father Stephen, who died 14th John, and is in the prior Roll of 1196-1204. It has been suggested by Lysons that Robert Peverel held the 9 fees only in trust for Roesia de Lucy, assigning as a ground for this supposition that Rohesia's husband's mother was one of the co-heiresses of Pain Peverel of Cambridgeshire. If this were the case, it would fully account for the non-appearance of a Peverel in the list of 13 distinguished names 40 Hen. III (1256).

My conclusion, from the facts stated, is that William Peverel the grantor to Tywardreth, is the first recorded lord of Hamatethy, that the grant took place in or about the year 1170; and that Will. fil. Robert is not proved to have been a Peverel; that

Robert Peverel of the Scutage-roll of 1213, or later, was not likely to have been the father of William Peverel, the lord of Hamatethy 40 years before, but rather his son; and that the said William was probably the first Peverel who settled in Cornwall, "descended from the Peverells of Sanford Peverel, in the county of Devon, seated there early in the reign of Hen. II (1154-89) being descended from William Peverell, who in the time of Hen. I. (1100-35) was seated at Weston-Peverell in the same county."

JOHN MAYOW: CHEMIST AND PHYSICIAN,  
A.D. 1645-79.

By J. J. BERINGER, F.C.S., F.I.C., Associate of the Royal School of Mines.

The story of John Mayow is the strange one of a Cornishman honoured abroad and ignored at home; for whilst there are few histories of chemistry which do not record his achievements, here in Cornwall he is almost unknown. The absence of his name from the recognised list of Cornish Worthies may be due to the fact that he is only a Cornishman by descent, for there can be little doubt he was born in London; but in part at any rate it is also due to an ignorance of his works by our leading writers. In most histories of Cornwall he is mentioned, (Polwhele<sup>1</sup> even claims him as a relation) but the record they give is blemished by a mistake\* which affords abundant proof of an ignorance of his writings. Indeed Mr. Davies Gilbert<sup>2</sup> who describes Mayow as "a very extraordinary man, worthy of being ranked with the first chemists or philosophers of any age," avowedly derives his opinion from Dr. Beddoes, and Sir Humphry Davy<sup>3</sup>, who was for some time an assistant to Dr. Beddoes, probably derived his knowledge from the same source; but he writes of "Mayow of Oxford" in an ungenerous spirit, which is perhaps not difficult to explain.

Whilst however we have been somewhat remiss in claiming that share in Mayow which justly belongs to our county, many writers have been busy thrusting his greatness upon us. Brande,<sup>4</sup> Hoefer,<sup>5</sup> and sundry writers in Universal Biographies and Encyclopedias describe him as "born in Cornwall." This error

1. Language, Literature, and Literary characters of Cornwall.—*Polwhele*.

\* The title of Mayow's chief work is "De Sal Nitro et Spiritu Nitro Aereo." Our local historians with wonderful unanimity write it "Nitro Acerbo."

2. The Parochial History of Cornwall.—*Davies Gilbert*.

3. Elements of Chemical Philosophy.—*Sir H. Davy*.

4. A Manual of Chemistry.—*W. T. Brande, F.R.S.*

5. Histoire de la Chimie—*F. Hoefer, Tome II.*



probably arose in a too hasty reading of the earlier authors. Anthony a Wood<sup>6</sup> seems to be the only accessible authority on matters of biographical interest (for Granger<sup>7</sup> adds nothing new to his account); and he says:—"John Mayow descended from a genteel family of his name, living at Bree in Cornwall, was born in the parish of St. Dunstan in the west, in Fleet Street, London."

Mr. Gilbert<sup>8</sup> has a quotation from Mr. Bond's *History of Looe*, from which it appears that Philip Mayow of Looe, a merchant of some eminence in the time of Queen Elizabeth, purchased the manor of Bree or Bray, in the parish of Morval; there is also given another account which contradicts this, but it is certain that this manor was for a long time held by a family of Mayows, of whom according to Mr. Bond, "Dr. John Mayow, an eminent physician" was one. Where Mayow spent his childhood is unknown, but the first recorded incident is suggestive. Soon after the return of Charles II he was "admitted scholar of Wadham College," (27th Sept. 1661), and was very quickly "chosen Probationary Fellow of all Souls College," "upon the recommendation of Henry Coventry." Dr. Beddoes<sup>8</sup> points out that "some favour was shown him at his reception into all Souls College," inasmuch as of the forty fellows of that society, sixteen are "free from obligations of entering into orders; and the offices of the college devolve oftener upon them, in inverse proportion to the numbers." That the influence thus exerted was to some extent political can hardly be doubted. Lord Clarendon held Henry Coventry's father in much esteem, Henry himself became Secretary of State, and his brother Sir William Coventry is frequently mentioned by Pepys as a man of influence with the party headed by Lord Clarendon and the Duke of York. The patronage of Coventry was probably continued, for in 1674 Mayow dedicates the collected edition of his works to him.

At college "he had a legists place and took the degrees in the Civil Law, yet he studied physick," and took the degrees in that also. That medicine very early occupied his attention is

6.—*Athenae Oxoniensis*.—*Anthony a Wood*.

7. *Biographical History of England*.—*J. Granger*.

8. Chemical experiments and opinions extracted from a work published in the last century.—*T. Beddoes*.

shown by the fact that in 1668, at the age of twenty-three, he published two tracts in latin, one on *Rickets*, the other on *Respiration*, which gained him much reputation. The tract on *Rickets* "was allowed to be the best extant on that subject" (Granger). In 1671 they were both reprinted at Leyden; according to Jocher the Dutch not merely reprinted but also translated them. Hansen in an address published at Gottingen in 1762 often quotes Mayow on the subject.

The tract on *Respiration* is of even greater merit, but it is difficult to dissociate the effect of this from that of his later tracts. It is however worthy of remark here, that Dr. Draper,<sup>9</sup> who was a physiologist as well as historian, mentions Mayow's work on *Respiration* as one of the signs of the intellectual activity of that time; and all authorities acknowledge that "Mayow was the first to publish views worth recording on this difficult subject." How difficult the subject was then is shown by this: three years before, Sir George Ent, president of the College of Physicians, lectured before the Royal Society, showing not only that it was not—but that it could not—be known of *Respiration*, either "how it was managed" or "for what use it is."<sup>10</sup>

It is not known at what age he left Oxford, but in 1674 he republished there his two earlier tracts, together with three others. The first and most important of them on *Nitre and a Nitro-aerial spirit* is spoken of by Hoefer<sup>5</sup> as "one of the most remarkable books published during the seventeenth century." It is the work on which Mayow's reputation mainly depends. The other tracts were on *Foetal respiration* and *Muscular motion and Animal spirits*.

He published nothing after this, but he "became noted for his practice" as a physician, especially at Bath in the summer season. Granger speaks of his practice as "attended with great success."

"He paid his last debt of nature in an apothecary's house bearing the sign of the anchor in York Street, near Covent Garden (having being married a little before not altogether to his content), in the month of September, 1679, and was buried

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9.—Intellectual development of Europe.—*Draper*.

10.—*Pepys' Diary*.

in the church of St. Paul, Covent Garden." A most miserable conclusion to a life of splendid achievement and brilliant promise.\* But his works lived after him; within two years of his death, his tracts were republished at the Hague (1681) with some success; for a century later Dr. Beddoes<sup>b</sup> had considerable difficulty in finding a copy of the Oxford edition anywhere, except in the public libraries, but he said, "copies of another edition are more common abroad."

In 1692 Stanford Wolferstan published a book in which Mayow's views were adopted; and they were also taken up by Morhof, Baglivi, and Verheyen,† among other great teachers on the continent. He was studied and quoted by Hales, Haller, and Scheele, and in the opinion of Dr. Brande<sup>d</sup>, a man well qualified to judge, "his views and language were adopted by Newton." "The sketch of a theory of chemical attractions given by that philosopher in the queries annexed to the third book of optics is nearly in the language and quite in the spirit and meaning of his predecessor Mayow."

But whilst his work lived and grew, his reputation faded; nor is this much to be wondered at, for it was not until Lavoisier had illuminated the field of chemistry that the importance of the positions Mayow had taken up could be appreciated. Then he suddenly became famous. Dr. Beddoes published in 1790 a very readable book, entitled *Chemical Experiments and Opinions, extracted from a work published in the last century*. In 1793 Sherer published in Vienna a proof that Mayow had a century earlier established the foundations of modern and physiological chemistry. And in 1798 Dr. Yeats printed *Observations on the claims of the moderns to some discoveries in chemistry and physiology*; an exhaustive book in which Mayow's claims are laboriously but convincingly displayed. The effect of these publications was to rank Mayow with Hooke and Boyle as one of the three great

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\*"His too early death retarded by a century the dawn of modern chemistry."  
—Hoefer.

"It is probable, that if Mayow had not died a young man, or if Hooke had found leisure to prosecute his views, the theory of phlogiston would never have been propounded."—Rodwell, *Birth of Chemistry*.

† The only reference I can find in the edition of the *Encyclopædia Britannica*, published in 1798, is a quotation of Mayow's own words quoted through Verheyen.

precursors of Lavoisier. This position he holds and is likely to hold for all time.

It is impossible within a small compass to give even an outline sketch of his scientific work.\* In the explanation of calcination and combustion, no one before Lavoisier had so firm a grasp of the truth as he; he was the first to teach anything worth teaching concerning respiration. The true idea of compounds and the doctrine of elective affinity are first clearly and fully expressed in his works<sup>11</sup>, and he was one of the first experimenters on the chemistry of the gases.

It has been charged against him, that he "embraced the hypothesis of Dr. Hooke and without acknowledgment," and Hallam<sup>12</sup> adds that he "clogged it with so many absurd additions of his own as greatly to obscure its lustre and diminish its beauty." The charge of absurd additions is itself absurd; these additions constitute Mayow's claim to greatness, a claim universally allowed. The charge of "appropriating without acknowledgment" would be a more serious one, if that of dishonesty which is implied in the phrase "without acknowledgment" could be maintained. But it cannot, Mayow's book on the face of it is a selection of the truest of the teachings of his predecessors, with experiments, suggestions and developments of his own. In the second paragraph\* of his chief work he complains of the number of writers on the subject; the truth being overwhelmed in a crowd of writings, there was no reason why he should name the writers from whom he rescued it. Moreover it may be justly

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\* A fair but condensed account can be found in Mr. Rodwell's "Birth of Chemistry," or in the short account of the development of the science prefixed to Dr. Brande's "Manual of Chemistry." In the recent edition of the Encycl. Brit. (1886-87), page 461, there is a very fair and terse account of his scientific position.

11. See *Whewell*, "Philosophy of the Inductive Sciences," (1847), Vol. I. page 395.

12. Introduction to the literature of Europe.—*Hallam*.

\* Non me latet quam plurimos jam extare de Nitro tractatus et vix quempiam e nuperis authoribus esse, qui non aliquid de eodem scripsit. Quasi nimirum in Fatis esset, ut Sal hoc admirabile non minus in Philosophia quam Bello strepitus ederet; omniaque sonitu suo impleret. Interim tamen veritas scriptorum multitudine plane obrui videtur; et nitrum etiamnum in tenebris latet.—*De Sal Nitro et Spiritu Nitro Aereo*.

urged that he carried the truth so far beyond the point at which Hooke left it, that he might fairly have looked on it as his own. We have contemporary opinion on this point Dr. Plot\* published in 1677 a *Natural History of Oxfordshire*, in which he attributed the credit not to Hooke, the leader of English science, but to Mayow the comparatively obscure physician.

Finally it must be conceded that Mayow shared in many of the errors of his time, and made errors of his own: but greatness is won not by avoiding so much as by achieving, and he achieved much.

My thanks are due to Mr. H. M. Jeffery, F.R.S. (at whose suggestion this essay was prepared), for references and advice; and I am similarly indebted to Mr. Howard Fox, F.G.S.

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\* Professor of Chemistry at Oxford, Secretary to the Royal Society (1682).

## NOTE ON SIR HENRY DE BODRUGAN,

BY H. MICHELL WHITLEY, F.G.S., *Hon. Sec.*

Amongst the Rolls of Parliament for the year 1475, are some entries, which throw much light on the stormy state of life in Cornwall during the middle ages.

At this time there lived at Bodruga in S. Goran in great affluence and splendour, Sir Henry Bodruga, who tradition says, was attainted for supporting the cause of Richard III at Bosworth, and fled into Cornwall. Here hotly pursued by his enemies, on a piece of coarse moorland called the Woeful Moor he made his last stand, and at last overpowered fled to the cliff and took a desperate leap over the precipice, but alighting safely on a little grass plot a hundred feet below, he was rescued in a boat by some of his tenantry, and turning towards the land he uttered a curse on his inveterate pursuers.

The Castle of Bodruga which was destroyed in 1786, is stated by Borlase to have been one of the finest in the County for magnificence, he describes a chapel, converted into a barn, the large hall, and an ancient kitchen with a timber roof.

“This worthy but unfortunate man” as C. S. Gilbert calls him, appears however in another light in the document referred to, being rather a trouble to his neighbours; for in 1475, John Arundell of Talvern, John Penpouse, William Carnsuyowe, and Otys Phillipp, yoman of the crown, complained to the King that Henry Bodruga, otherwise Trenowith of Bodruga, was guilty of murders, robberies by sea and land, and almost every other crime, so that no strange merchant dare resort to Cornwall; or any of the Cornish Merchants dare resort to parts beyond the sea: so that the trade of the County is utterly ruined.

Amongst other of his misdeeds, on the Vigil of the Holy Trinity, 1475, he victualled and manned two Karvels, one called the Mary Bodruga, and the other the Barberye, of Fowey; which fell in with a Karvel of 50 tons, of Brittany, which they chased into the harbour of St. Tye, and there murdered the

sailors, and robbed the ship of wine and cloth, to the value of three hundred marks; which goods were taken to Bodrugan.

But the swashbuckler was a terror by land as well as by sea, for on the 10th of May, 1475, he broke and entered into Talvern, by force of arms, and robbed John Arundell of—

A covering of a bed, of arras  
 Eleven coverings of bedds, of worsted  
 Three federbedds  
 One hougill of a hall and parler, of grene worsted  
 A paire of fustians  
 Two pair of sheetes  
 Four bolsters  
 Six Pylowes  
 Four potts of brasse  
 Five pannes of brasse  
 Two andyers\* of Yron  
 Four brochez† of Yron

To the value of £30, and a coffer locked with evidences in the same conteyned, the value of the same coffer, 6s. 8d.

And on September 20th, 1474, with a riotous assembly, he broke into and robbed the houses of John Penpouse, at Truruburgh and Helstenburgh, of—

“A counterpent and filer of a bedd of counterfette areys  
 Eight brass pannes  
 Seven potts of brasse  
 An anvele of stile  
 Ten quarters of whete  
 One tesse of Hey”

To the value of £10, he also took two horses, a cow, of the value of four marks, and “a cofer lokken and seled with evidence concerning the land of the said John Penpouse.”

Then again, on May 10th, 1471, he broke into the house of William Carnsuyowe, at Trecarne, beside Hellesbury Park, and stole a fine haul, namely—

“Four coppes of sylver  
 Three dozen of sylver spofyns‡

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\* Andirons.

† Spits.

‡ Spoons.

A chalys of sylver  
 Four girdels of sylver, overgilt  
 A signet of gold to the value of 40 marcs  
 Item a horse price of 40 shillings."

But a yet more daring outrage was committed by him, on May 6th, 1475, when about two hours after midnight he stormed Polwhele, the house of Otys Phillip, and attempted to set it on fire, and so frightened Otys and his servants, that they despaired of their lives, here again Bodrugaan had a fine booty—

Two coppes of sylver  
 One dozen spoynes of sylver  
 Four pieces of tinne weighing 1000<sup>u</sup>  
 One pair of briganders  
 Two bowes a shefe of arrowes  
 And eliven gerdles of sylver to the value of 40 marcs."

But these were not the only petitioners, for James Trefusis complained that "at the feast of penticost, 1474, he was in God's peas and our seid sovereign lords at Trewanwell his dwelling, when Henry Bodrugaan, Squyer, appeared with his servants armed in manner of warre; and broke open the doors and windows and robbed the house of the following goods—

	£	s.	d.
Three horses, price .. ..	7	6	8
Item two oxen .. ..	0	40	0
Item 16 kien, a bull, and 2 kalves ..	10	0	0
Item two corse girdells, harnessed with sylver and gilt .. ..	0	50	0
Item a paire of bedes of corall the gardes of silver and gilt, price ..	0	23	4
Item five ringes of gold, price .. ..	6	13	4
Item two brasse pottes .. ..	0	20	0
Item five brasse pannes .. ..	3	0	0
Item a garnest of peauter vessell, price ..	0	20	0
Item two pieces of woolen cloth, price ..	0	26	8
Item six stone of woll .. ..	0	40	0
Item certeyn lynnenn yern, price ..	0	40	0
Sum. Tot. ..	£40	0	0



Another sea outrage is alleged against Bodrugan, for on the 20th June, of the same year, he boarded a ship of Trefusis called "The Bride of Saint Feke," of 30 tons burden, and took stuff of the value of 40 marcs away.

And as if all these outrages were not enough, it is further alleged that he "not dowtyng God nor the dredeful censures of the church," without any authority proved peoples wills, and changed them to his advantage; whilst he extorted large sums of money from the people to the universal hurt of the shire, and no man dare sue him for fear of death and spoilation.

These statements, precise in detail, give a lively picture of life in Cornwall in mediæval times, and of the feuds that were constantly occurring between the neighbouring landowners.

For these crimes he was convicted in his absence, but the conviction was reversed on his appeal, stating that no chance was given him to appear. But he was again attainted after the battle of Bosworth-field.

NOTE ON A PETITION FROM ST. MAWES TO BE ALLOWED TO  
RE-BUILD ITS ANCIENT CHAPEL OF EASE.

By HENRY M. JEFFERY, F.R.S., *Vice-President.*

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A copy of the following document was left behind by the Rev. Dr. Rodd, at St. Just Rectory, in 1836, with a memorandum that it was "an old paper found amongst the deeds of Mr. J. Buller, of Morval." The petitioners probably wished to procure the Bishop's license; if one may judge from the style and orthography, and from the circumstance that no allusion occurs to dissenting chapels, the petition may have been drawn up towards the close of the 17th century.

The following extract from Lake's *Parochial History of Cornwall*, 1868 (vol. II, p. 309), contains all that is known of the chapel. "The ancient chapel of St. Mawes or S. Manduit "is mentioned in Bishop Lacy's Register, August 18th, 1427. "This chapel was afterwards turned into a dwelling house. "A great deal of Pentewan stone was used in its construction, "and the floor was formed of blue stone neatly cut into squares. "On the north side of the house the ancient wall remained "nearly entire early in the present century, and had a small "Gothic arch of stone, curiously wrought. In building on or "near this place, human bones were dug up in clearing the "foundations. These buildings are styled in their leases the "*Chapel Yard* tenement, and the house adjoining, the *Chapel* "tenement. In this chapel the inhabitants of St. Just had a "license to attend Divine Service since the Reformation. The "ancient well still exists: the water is good, but somewhat "hard. The fountain is pre-eminently designated S. Mawes "well." In Lysons' *Cornwall* (1814), p. 153, similar notices appear, taken from Whitaker and Borlase's collections.

A reference to the chapel may be also cited from Leland's *Itinerary* (1545). "Scant a quarter of a mile from the castel "on the same side, upper into the land, is a praty village or "fischar town with a pere, caullid S. Maw's; and there is a "chappelle of hym, and his chaire of stone\* a little without, and his

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\* Such a chair of Elvan Stone, called after the patron Saint, St. Germoch, is still preserved in Germoe churchyard

“welle. They caulle this Sainet there S. Mat. . . . (? Machutus), “he was a bishop in Britain (? Bretayne), and [was] paintid as a “scholemaster.” The petition is subjoined.

“The Fisher Town of St. Mawes, wherein there are 300 inhabitants and more, and whereto do belong 30 ships and botes, had a chapel of ease, in which divine service was wont to be said in Queen Elizabeth’s time, and before, which now is not employed to that purpose. The townsmen and neighbours thereto humbly desire that they may have leave and authority to re-edifye the chapel for service there to be read weekly and sermons to be had monthly at their own costs and charges.

The reasons why they desire it are:—

1.—Their town standeth about two miles from Saint Just their parish church, by reason whereof some old and impotent persons (who cannot goe on foote and are not of abilitye to get horses) have not been at church these 3 years, which they are desirous to doe, if service were read at home in their own towne.

2.—The seate of the chapel is almost in the middle of the towne and near to the harborough or key, where the ships and botes lye, so that the fishermen will be willing on wick days to come thither to divine service, when had or whether doth keepe them at home, which they cannot doe at St. Just being so remote and they bound to attend their times at sea.

3.—The fishermen and merchants would be glad to pray in publique for good ( . . . . . ) when they go out to sea and likewise to give God thanks for their prosperity, when they retorne, if the chapel were fitted and licensed for their steady repair, which they cannot do, the church being so far off.

4.—Sometimes about the herring fishing time many merchantes, savers, and other takers and savers of fish to the number of 500 at least are long resident in the town, which would com to divine service, if any were publicquely celebrated in or near the towne, which they seldom or never go to St. Just for the length of the way.

5.—There is at the towne end of St. Mawes, the king’s castell, whence the soldiers cannot well go to the mother church on weeke days or ( . . . . . ) or holy dayes, which they would willingly doe to the towne chapel, especially on sermon dayes.

6.—The parson of St. Just is very willing to have all divine service celebrated and sermons to be had monthly at the said chapel, to the performance of which sermons both he and the rest of the neighbour preachers have very willingly offered helpes, all being maintained at the only cost of the town, and the place being very fit therefore as the chapell, being of two (.....) able to contain about 1000 within it, and having thereto a little parcel of ground not fully a quarter of an aker, in which there have long since been a pulpit erected, and sermons preached, though now it be neglected.”

The present chapel of ease, which was re-built in 1883, stands at some distance on higher ground, on the site of the chapel built by a Marquis of Buckingham, in 1812.

**CORNISHISMS IN ANCIENT LITERATURE.**  
(XTH CENTURY TO 1689).

BY REV. S. BUNDLE,

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Many words, that are generally thought to be Cornish both in usage and pronunciation, are found extant in various deeds, poems, and writings of all kinds, that owed their existence in no sense of the word to Cornwall. It is therefore interesting to find still extant here words that have become obsolete in other parts of the country. Sometimes scorn is cast on the usage of provincialisms, and severe measures are taken to stamp it out. An acquaintance with the ancient literature will teach us that very often the peasant's language is far more akin to pure English than that of those who profess to act as his teacher. It is, however, necessary to add that it is not meant that the words in this paper are all exclusively Cornish.

I have divided my subject into three parts:—The first relates to the occurrence of Cornish words, still in use, in writings from English authors. A sub-division is concerned with instances of Cornish pronunciation of words to be met with in English documents. The second division deals with Cornish words, and pronunciation, found in literature of the west country other than Cornwall. In the third part, examples of the antiquity of Cornishisms, both in expression and pronunciation, are adduced from Cornish documents.

I will not tempt your patience with a long list of the books and documents that have been laid under toll. I feel, however, that I ought at least to say that I have experienced great help from Miss Courtney's and Mr. Couch's Glossaries of E. and W. Cornwall in giving explanation of Cornish words.

A few Cornish words appear for the first time in print as such. For the purposes of this paper, "English" may be defined as including all parts of the country with the exception of Cornwall. "Ancient" refers to the period from the tenth century to the end of the seventeenth century, embracing the first beginnings of our language and its practical consolidation at the time of the

Revolution. By "literature" all kinds of documents, deeds, poems, plays, verse, and prose, whether published or in manuscript, are to be taken as being meant.

BISHOP (*v.*)=confirm.

"Care shall be taken that no-one remain too long un-  
*Bischopped.*"—*Injunctions of St. Dunstan, tenth century.*

GIGLOT=merry, giddy girl.

"Foremost in bower were bosses bought,  
To honour ladies, I ween, they were brought.  
Now each *giglot* will lour, except she have them sought,  
Although for such shrews they are full dearly bought."  
*Harl. MSS. 2253, temp. Edw. ij.*

CRASE=crack (*v.*)

"Thus was youre croune *crasid*,  
till he was cast newe,"  
*Poem on the Deposition of Richard ij. Date 1399.*

HURL=sift (*v.*)

"This is clergie hir kynde,  
Coltis [nat] to greve,  
Ne to *hurle* with haras  
Ne hors well-atamed."  
*Do. Date 1399.*

KNAP=the steep brow of a hill (only found in E. Cornwall.)

"The large and auncient Castelle of Launstun  
Stondith on the *knappe* of the hill."  
*Leland's Itinerary, 1533-1552.*

SCOREDS=small pieces.

"Rodes made of *scoredes.*"  
*Epigram temp. Henry VI.*

SOLLER=a temporary floor at the bottom of a mine level.

"Whether your wood lofts be taken down, and altered  
so that the upper part with the *soller*, or platform be quite  
taken down unto the cross-beam."  
*Articles of Archbishop Grindal, 1576.*

"Ecce solarium cecidit." *Eadmer Vita S. Dunstani.*

CORAM=some one in authority (probably a justice of the peace,  
from "quorum") or magistrate.

*Slender*.—"In the county of Gloucester justice of the peace, and "*coram*."

*Shakespeare: Merry Wives of Windsor, Act 1, Scene 1, line 6.*

**LET**=hinder (v.)

*Viola*. "If nothing lets to make us happy both."

*Shakespeare. Twelfth Night, Act V, Scene 7, line 256.*

*Date 1601.*

**PEIZE**=balance, weigh down.

*Rich*. "I'll strive with troubled thoughts to take a nap,  
Lest leaden slumber *peize* me down to-morrow."

*Shakespeare. Rich. ij, Act V, Scene ij. Before 1598.*

**RUDDOCK**=the *ruddock*-robin.

*Arviragus*. . . . "The *ruddock* would  
With charitable bill bring thee all this."

*Shakespeare.—Cymbeline, Act IV, Scene ij.*

**DIET**=provision of meals.

"Item for the *dyett* of Sr Thomas Vavasor."

*Thaccompt of Sr Henry Tichborne, Sherif of Hampshire, 1603.*

**HELLIER**=a tiler.

"Item paide Arthur Rudsbie *heliar*." *From Thaccompt of Sr Henry Tichborne, Sherif of Hampshire, 1603.*

**FRAIL**=bag or basket.

"Of fruit here is great plenté, Figges, raisins in *frayel*."

*Romance of Richard Cœur de Lion, not later than early in Edward ij's reign.*

*Peregrine*. "If you could lie round, a *frail* were rare."

*Ben Jonson, Volpone, Act V, Scene i. Before 1637.*

**NIGHT-OROW**=land-rail.

*Truewit*. "I commend your resolution that notwithstanding all the dangers I laid before you in the voice of a *night-orow*, would yet go on, and be yourself."

*Ben Jonson. Silent Woman, Act ij, Scene ij.*

**TOUSE**=drag.

*Kastril* (to his sister). "O I could *touse* you now."

*Ben Jonson. Alchemist, Act V, Scene ij.*

POWDERED=slightly salted.

*Lady.* "And of a wild-fowl will he often speak  
Which *powdered* beef, and mustard called is"  
*Beaumont and Fletcher. Knight of the Burning Pestle,*  
*Act IV, Scene 1. Before 1615.*

Sprigge, one of Cromwell's chaplains, speaks of  
"ploughs (carts) being drawn out of Launceston, amongst  
the lading of which was *powdered* beef."—*Cir.* 1644.

OCURRENCE OF CORNISH PRONUNCIATION IN ENGLISH  
LITERATURE.

LEATHEREN=leathern.

"A *leatherin* lederr,  
And a lang line."  
*Song on King Edward's Wars, by Lawrence Minot.*  
*Date (cir.) 1352.*

WRASTLING=wrestling.

"At the *wrastling*, and at the wake."  
*Complaint of the Ploughman, 1393 or 1394.*

AXE=ask.

"What is this to mene, man !  
Maiste thu *axe* ?"  
*Poem on the deposition of King Richard ij. Date 1399.*

VENYAUNCE=vengeance (y pronounced g).

"Venzaunce they asked  
On all that assented."  
*Do., Date 1399.*

MADDED=driven mad.

"And that *maddid* the men,  
As thei nede muste."  
*On the Deposition of Richard ij. 1399.*

GLASEN=glassy : made of glass (metaphorical).

"Thou approvest your capped maistres  
With a *glasen* glose."  
*Reply of Friar Daw Topias. Date 1401.*

HALE=haul, drag.

"An arrow of an ell long  
In his bow he it throng,  
And to the hede he 'gan it *hale*."  
*The King and the Hermit (Romano). Date XVth century.*



FRENDGE=fringe.

"Also I give to Adam Ashame my hose with the *frendge*."  
*Will of Mr. Sheeney. Prerogative Court of Canterbury.*  
*Date 1573.*

MAISTER=master.

"William Goune at this present time being *Maister*."—  
*Grant of Arms to the London Company of Armourers.*  
*1556.*

AFEARD=afraid.

*Slender* : "No, she shall not dismay me, I care not for that, but I am *afeard*."—*Shakespeare, Merry Wives of Windsor, Act IV, Scene ij.*

HOISE=hoist.

*Buckingham* : "We'll quickly *hoise* Duke Humphrey from his seat."—*Shakespeare, ij part of King Henry vij, Act j, Scene j.*

FOWER=four.

"Item, paide for *fower* dozen of napkins."—*Sir H. Tichborne's Account. No. 3.*

CHILDER=children.

*Citizen* : "The *childer* are pretty *childer*."—*Beaumont and Fletcher. Knight of the Burning Pestle. Before 1615.*

MARGET=Margaret.

"You are no love for me, *Marget*."—*Do. Date before 1615.*

#### SOMERSET.—OCCURRENCE OF A CORNISHISM.

BRANDIS=a three-cornered rest for a kettle. *a Trivet*

"The kychyn . . . It ij *brandys*."—*Nettlecomb Invent., 1526.*

In Devonshire the word "*brandis*" is applied to places shaped like this article, *e.g.* Brandis Corner near Holsworthy, and Brandis Lane near Crediton.

#### DEVONIAN.—OCCURRENCE OF CORNISHISMS.

QUILLET=a small meadow; a piece of land.

"John Gribble for a *quillet* of a garden x<sup>d</sup>."—*Accounts of the Receiver of Totnes. 1554-5.*

JOURNEY=task ; work.

"Payde to Richard Scoble and his men three and twentye *journeys* for the newe makynge the Church Style . . . .xv<sup>s</sup>."—*Parochial Expenses of Milton Abbot*. 1588.

SPALLIER=mine labourers working with spades.

"For every *spallier* a shovell penny."—*Chugford Parochial Accounts*. 1593.

TUT=footstool

"1636, May 7, Paid Cooze ye Sexton, for 4 "*tuttes*" I say . . . . .1<sup>s</sup> 6<sup>d</sup>."—*Private Account Book of an (unknown) Exeter Merchant*, 1636. *From Jour. R.I. of Cor., Vol. I, page 71.*

DEVONIAN.—OCCURRENCE OF CORNISH PRONUNCIATION.

DAFTER=daughter. *Is my daughter to Cornwall*

"For a payre of shoves for a *dafter* of Edmund Bela . . . .v<sup>d</sup>."—*Parochial Expenses of Milton Abbot*. *Date* 1588.

WIDOWMAN=widower.

"John Doydge, *widowman*."—*Do.* *Date* 1588.

CORNISHISMS IN OLD CORNISH DOCUMENTS.

CLAVEL=posts of wood placed over a mantel-piece.

"For two *clavils* paide."—*Borough Accounts of Launceston*. *Date* 1450.

SLOOK=entice.

"Also we ordayne that no man of the brederyn . . . . *slokke* any other hys servaunte."—*Rules and Regulations of the Helston Guild of Cordwainers*, 1459.

HELLINGSTONE=slate.

"Carriage of nineteen semes of *helyngstone*."—*Launceston Borough Accounts*. *Date* 1467-8.

NITCH=bundle of reed, or spars for thatching.

"Pd: for one *knycche* of speers."—*Do.* *Date* 1467-8.

QUAILAWAY=wither ; die away.

"Yn case you suffer your right for lack of diligence to *quayle away*."—*Letter from Jo. Mowlsworth, prest to John Trevelyan, Esq.* *Date before 1492.*

HELLIER=tiler. (An instance of the occurrence of this word in general literature has been given).

"....to a *helyar* for nine days.....3/6."—*Borough Accounts of Launceston*. 1468.

FREATHING=a wattling.

"*le ffrethinge* outside le Southgeat."—*Do*. 1477-8.

DURNS=the door jambs.

"Pd: for two wain-loads .....for the *durnes*, 3/4."—*Accounts of Guild of Holy Cross at the Bery, Bodmin*. 1501-14.

STANDINGS=street-stalls.

"A *stondynge*.."—*Accounts of Launceston*. 1512.

BUTT=a heavy two-wheeled cart.

"It: a *butt*."—*Whale's Borough Inventory*. 1543.

CLOME=earthen-ware.

"It: iiij pottes of *clome*."—*Do*. 1543.

FRAIL=bag, *place of a bundle or a stone used by workmen*

"For a *frail* to carry stone."—*Launceston Accts*. 1576. *Mer*

WANTS=moles.

"For killing of *wantes*."—*Do*. 1576.

LEASE=pick stones.

"Pd: Geffreys two boyes for *lesing* stone."—*Do*. 1572.

COOL=tub for salting meat in.

"Mr. Humphrey....for *cooles*."—*Do*. 1572-3.

STRUBBER=robber.

"Wm. Toker is presented at the Law Courts for that he is a common *strubber* of hedges."—*Do*. 1580.

MAZARDS=black cherry.

Presentments: "Thomas Hodges for forestalling the markett in *maserdes*."—*Launceston*. 1589.

CORAM. (An example of this word used by Shakespeare has been given).

"Here lyeth ye bodeye of Robert Trencreeke of Trencreeke in Crede in ye countye of Cornwall Esq., justice of ye peace, and *Coram*."—*Brass at St. Erme*, 1594.

It will be noticed how very closely the expressions of slender and shallow in the "Merry Wives of Windsor"

tally with the above inscription. "Robert Shallow, Esq., justice of the peace, and "Coram."

SEAM=load.

"For carriage of nineteen *seams* of helyngston."—*Acts. of Launceston.* 1604-5.

SPENCE=cupboard.

"In the Rectory . . . . . two little *spences*."—*Terrier of Landulph Rectory.* 1679.

BAL=mine.

"Who died at the *Bal*."—*St. Breage Registers of Burials.* 1689.

Cornish words are used in "canting" heraldry, by families who bear, on their arms and as crests, various objects, whose names in Cornish can be susceptible of a double meaning. For example :—

✓ GAMBORNE=part of a leg.

Family of Gambon. "Ar. a fess between three men's legs couped at the thigh."

*a gambon of a leg*

HARVE=harrow.

Family of Harvey, of Hall, Linkinhorne :—

"Ar : a Chev : between 3 *harrows*."

TUBB=gurnard (red).

Family of Tubb of Trengoffe in Warleggon.

Crest—"A beaver pass : ppr : in the mouth a gournet gu :"

# OCURRENCE OF CORNISH PRONUNCIATION IN OLD CORNISH DOCUMENTS.

SERPELL=surplice.

"Paid for foure *serpells*."—*Launceston Borough Accounts.* 1450.

BOFT=bought.

"It. for ridge tile I *boft* 12½d."—*Accounts of St. Thomas Church, Launceston.* 1474.

BAILEY=bailiff.

"Thomas Awode . . . bayly of Botlete."—*Relief on the death of Thomas Whalesborough.* 1482.

IRE=iron.

"It. V *yres* for windowes."—*Do.* 1483.

BORYER=borer.

"It: a gret red *boryer*."—*Inventory of Goods of John Trevelyan yn Wcalesborough.* 1543.

SHOWL=shovel.

"It: ij *showlys*."—*Do.* 1543.

PLANCHING=planking.

"37 feet of *planching*."—*Casual Charges of Borough of Liskeard.* 1574.

OFF=ought.

"We do fynde that the South yett *oft* notte to be sette."

—*Presentments of Launceston.* 1567.

LENT=loan.

"For the *lent* of the ladder."—*Accounts of St. Thomas's Church, Launceston.* Cir. 1620.

GOOD-A-FRIDAY=Good Friday.

"Pd: 4 quarts of sacke 4/8d. *Good-a-Fridays*."—*Churchwardens' Accounts of Launceston.* 1642-3.

MOIL=Mule. (Heraldic usage).

Arms of *Moyle* of Bake. "Gu: a mule pass."

## NOTES ON THE NEIGHBOURHOOD OF BROWN WILLY.

By THE Rev. A. H. MALAN, M.A.

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To the east of Rough Tor and Brown Willy there are various objects of interest within the radius of a few miles, which merit a visit from the Royal Institution of Cornwall; and prevented as we are on this occasion by the exigencies of a one-day's excursion from penetrating beyond this point,\* I will draw attention to a few of them, in the hopes that even a fragmentary description may be of some use to any of our party who happen hereafter to be in the neighbourhood.

The Church of Altarnon is itself a veritable museum of antiquarian curiosities, with its wealth of carved bench-ends, Norman font, 15th-century Rood Screen 50 feet long, its quaint pictures, Great Bible, private Account book of "Parson Ruddle," who exorcised the ghost of Botathen, and other remarkable things; but a museum practically closed to the public, inasmuch as it lies off the present-day coach-roads, and is out of the track of tourists. In the parish of Altarnon are some 16th century dismantled manor houses, portions of which are utilised as farm-houses;—Trerithick, formerly the house of the Treruddick family: Trebant, with the stones of its dated and traceried doorway now forming the garden entrance: Polgray, where the late Mr. Whale, a Cornish artist, was born, and where some of his paintings may be seen;—and where, by the way, a curious stone ladle was recently dug up: Trelawny, the ancient seat of the Trelawny family, who left it about the time of Henry 5th, but of this nothing save the site remains: and West Carne. At the latter place there is a good carved granite fire-place, liberally covered with whitewash, and blackened with peat smoke; the bedroom above the "kitchen" being approached by a newel staircase. Beneath the hood-mould of a granite window of superior mould-

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\* Partly read at Brown Willy, August 30, 1887.

ing\* is carved the legend ANNO DOMYNE 1513, IOHN MORYDEG. It is interesting to come across such a distinctly British name. I can find no mention of it in the parish registers, but these date no further back than 1688. It reminds one of the Breton saint Meriadec; is the name Morydeg still to be met with in Cornwall? Conan Meridock, nephew to Octavius, whom the Emperor Constantine appointed governor of this island, was Duke of Cornwall.

On this farm, in a meadow known as the "church close," there are such portions of an ancient rectangular rampart, as have not succumbed to the ravages of agriculture and hedge-building. The tenant tells me that when ploughing the ground, the share has from time to time grated on granite slabs, which have turned out, on being raised, to be covering stones of an underground passage. These slabs are about 4 feet square, and seem to have been originally worked; but, as every one knows, blocks of weathered moorstone often assume such an appearance, though they have never been touched by any tool. This passage being within the camp seems to correspond with what one reads of the Irish raths and souterrains; the landlord has kindly permitted me to have it opened out to discover the actual nature thereof, and I have intended to avail myself of his goodwill, but procrastination often proves the thief of time. The local tradition asserts that the ground was called the church close, because it was intended to build Altarnon church there; but as fast as the stones were brought to the spot, they were removed by the devil, (accompanied by a deer and a hare) to where the church now stands, in a lower and less conspicuous position. A somewhat similar version of a common legend is met with in connexion with Towednack Tower and its battlements.

In the adjacent parish of St. Clether, near to its church and in the heart of the glebe, but not belonging thereto, is an old Baptistry and Holy-well; portions of the walls remain, and the worked jambs of door and windows are lying about among the brambles. It is desirable that the baptistry should be fenced round, and the scattered stones replaced, if possible; but two letters addressed to the trustee of the owner of the land (who is

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\* The moulding of the mullions is similar to that at Pengersick Castle.

a minor,) asking permission to have this done, have failed to secure a reply. But the curious need not go very far, in order to see another interesting object of the same nature; for in the adjacent parish of Laneast, in a meadow below the church, is a Holy Well, whose building is in excellent preservation; a faithful representation of it appears in Blight's *Crosses of East Cornwall*, p. 85.

In Lewanick church there is an example of a very rare class of antiquities, known by the name of Cresset Stones, (fig. 1). The one in question is a circular block, containing on its flat upper surface, which is 22 inches across, seven cup-like hollows,  $4\frac{1}{2}$  inches deep. These hollows have been conjectured to be intended for the oil and wicks of seven lamps, or else to be the

receptacles for the cruets, etc., at the celebration of the mass. Mr. Harry Hems, of Exeter, who first drew my attention to this object, has collected a number of papers bearing upon cressets, and has corresponded with various antiquarians on the subject, but a perusal of his papers, which he kindly lent me, did not tend to throw much light on their actual use. Quite recently a theory was started in a newspaper that the

FIG. 1.—CRESET STONE

stone was a standing place for evil-doers; the offender shewing his penitence by standing barefooted on a layer of thorns spread on the surface, presumably during the church service. This theory seems ridiculous on the face of it; such cup-hollows would be badly suited for the reception of thorns, and it would be a physical impossibility for any one, penitent or not, to remain standing any length of time on such a prescribed area. The Lewanick stone rests loosely upon an octagonal shaft, apparently not connected with it, but "the oldest inhabitant" cannot remember the stone having had any other resting place.

In North Hill church may be seen a slate slab, let in to the E. wall of the S. aisle, having engraved upon it a figure of a



child in a chrisam-garment, and a mutilated Latin inscription above. The slab, then more perfect, seems to have been taken from a chapel which formerly stood in the grounds of Trebartha. At Trebartha of course there is the unique collection of Cornish birds of the late Mr. E. Hearle Rodd, in the possession and careful custody of the present lord of Trebartha. Among its many ornithological treasures is the first example of the spotted eagle (*Aquila Nœvia*) recorded in England, which was shot in Hawk's Wood, (see Rodd's "Birds of Cornwall") in 1861. Another example was shot at Carnanton within a twelve month, and was presented to our museum, at Truro, where it may be seen, in a separate case, above the hawks,—an interesting feature in the collection of birds.

About two miles to the N.E. of Trebartha is Upton Castle—(figs. 2 & 3) an antiquarian enigma. It consists of a circular

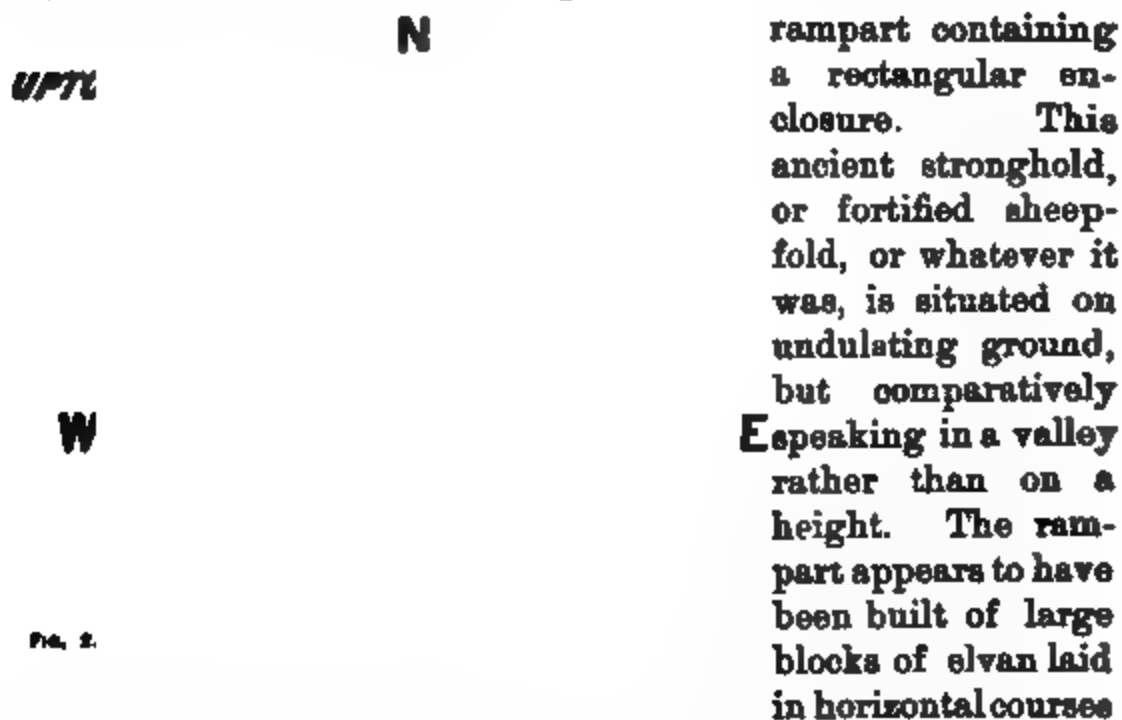


FIG. 2.

without mortar; but this (except portions of the lower courses) having fallen outwards in inexplicable confusion, and its ruins being covered with moss and filled in with the dead leaves of generations of oak saplings, it is impossible to say whether, in addition to the rampart proper, there was a kind of *chevaux de frise* contiguous to it. The ground falls away abruptly on the N. side of the castle, and there the large blocks, whether earth-fast or not, are sufficiently numerous and precipitously arranged to

suggest such an idea. This rampart, which is a rude circle, measures internally about 240 feet in circumference. As to the rectangular enclosure A, it is built of comparatively small stones, and about 42 feet by 24 feet in measurement inside. Between this and the rampart on the S. side is a smaller enclosure B, the contiguous walls of A and B being so close together as to leave only a very narrow passage between. Attached to the exterior of the N. wall of the part there is an appendage C, which have been the main entrance.

Returning to these hills: on the fr side of Rough Tor (i.e. from Fernac the borders of a bog peculiarly dee even for these moors, a monument erect public subscription marks the place in 1844 Charlotte Dymond, a young w in service at Penheal (Davidstow), murdered on a Sunday in April, by her servant Matthew Weekes. There circumstances especially horrible abo case: the girl set off to visit friends the moor, and was followed by Weekes decoyed her off from the trackway having cut her throat by the side o stream, threw her body into the water, the banks were high. Having relieve mind by murdering his sweetheart returned to Penheal and proceeded to g with his work. A week later, nothing having been heard of C. D., her master organised a search-party, when Weekes took the opportunity to steal away, halt-ing very leisurely at Altarnon; he was eventually caught and hanged. Nine days after the murder, three men on the search, followed certain

clog marks along the moor by Crowdy marsh, until they came to the place where the body was found, lying in shallow water. The ravens, strange to say, had left it untouched, but the cattle had torn up the ground in a ring, round the turf on which the victim had bled to death. Undermined by winter torrents this monument has fallen down, and should be set up again.\*

On the summit of Rough Tor, there is a natural cleft in the granite-pile called the "Slaughter house," where, it is said, "they" used to kill anything from a man to a sheep. Here also can be traced the outline of a small chapel; the font, window, and a small pillar—(fig. 6.) of which were confiscated by a farmer some thirty years ago, and may now be seen at Trevelyan gate. The font—(fig. 4.) is a small octagonal bowl, having in addition to the usual hole in the base for emptying, an overflow hole between two buttresses, cut out of the same block as the font itself. The window—(fig. 5.) was never quite finished, and appears not to have been glazed. The door-head at Trevelyan gate also came from this chapel, and was then plain on the face; but the farmer wishing to have "a Prince of Wales' feathers" over his door, engraved a fleur-de-lys thereupon. He probably copied the design from a doorhead at Temple church, or from a similar one now at Penpont (Altarnon), which displays the Virgin's Symbol, and which

FIG. 6.—FOUR FEET ABOVE GROUND;  
OTHER FACES OF CAP NOT  
WORKED.

\* This has since been done. I met Mr. Bastard, steward to Sir W. Onslow, on the spot, and having with two friends guaranteed half the needful sum, commissioned Mr. Nankivell, a granite mason, to collect the remainder in St. Breward. I instructed him to erect the monument on solid ground, a few yards from the water, where it would not again be undermined, and to retrace the inscription; and later on I visited the spot upon completion of the work. Mr. Bastard kindly volunteered to erect, at his own expense, the cross known as Mid-moor Post, which was also fallen down.

More recently, the Rev. R. H. Boles, Vicar of St. Breward, sent me the

belonged to some old chapel, possibly that attached to Trelawny in 1400.

On the western peak of Rough Tor are some good specimens of Rock basins. These are locally supposed to have been made



FIG. 4.—FONT, ROUGHTON CHAPEL.

by the Druids, and used by them as receptacles for the blood of their sacrifices. In the popular mind the basins are wholly artificial. One is tempted to smile at the credulity of eminent men, like Dr. Borlase, who formerly held a similar opinion; one is disposed to account for these basins entirely on natural grounds: thus. The rain settles in some small hollow, and by its alternate evaporation and freezing, detaches crystals of felspar, which, being actuated by the wind as it ruffles the water, assume a rotary motion, and in process

FIG. 5.—WINDOW.

measurement of a cross-head which was in the Churchtown, asking to be supplied with a working drawing for a shaft of due proportions. This having been sent to him, he defrayed the cost, and had the old head erected upon the new shaft, and set up the restored cross in his churchyard. A worthy example for other Cornish Vicars, who have shaft-less crosses in their possession, to imitate. A.H.M.

of time—time being of small consequence to these granite tors, —grind the bed of the hollow into a circular and smooth depression, ever increasing in circumference and depth so long as it remains watertight: and if there should be a weak place or flaw in the margin, the overflow water naturally escapes that way, and in escaping drags particles of rock with it, which gradually grind down and widen the flaw till a channel is formed.

Rock-basins may be seen in all stages of formation and disintegration. Yet an examination of a large number of them leads to a modifying of this theory of exclusively natural formation. Take the case of Rough Tor. Here we find the highest rocks on the western peak literally honey-combed with basins; on the eastern peak there is not a trace of one. The two peaks are equally exposed to all atmospheric vicissitudes; it is beyond the range of reasonable probability to suppose that natural agencies which have proved so remarkably effective at one end of the hill, should be wholly inoperative at the other end, which is only a few feet less in elevation. How is this to be explained? The explanation seems to be (paradoxical as it may appear) that the Western peak contains these basins *because it is* the higher of the two. The only place in this district where I have observed basins situated otherwise than on the highest peak of a hill, are Trewortha Tor, and Hendra. But the basins at King Arthur's bed (Trewortha) may be regarded merely as a portion of a series of basins all close together, some of which *are* on the highest peak; while the summit of Hendra hill has no outcrop of granite, and the only boulder which could be utilised as a megalithic altar, supposing such a thing were wanted, is the Elephant rock in question. As with Rough Tor, so it is with Catshole Tor, Fox Tor, and Hawk's Tor. On each of these there are in profusion enormous blocks of granite, weathered to such a degree that the forces of nature have fretted and chafed their originally more or less oblong proportions, until they have assumed a box-heater shape, with the point turned towards the prevailing wind; moreover the majority of these blocks are quite inaccessible to cattle, so that it cannot be suggested that by wearing down the surface of the stones evenly, the cattle have prevented the formation of basins. And yet in each case you will invariably find basins on

the summits of the highest rock, and nowhere else :—the “ High-place,”—the “ Hill-altar.” It seems well-nigh impossible to account for such exclusiveness of locality, wholly and solely on natural grounds ; it looks rather as if nature had completed and intensified, that which, in some cases at least, had been begun by man. However, whether they be partially artificial or not, the situation of the basins is interesting from quite another point of view ; for the topmost crags form look-out stations for ravens and other large birds, and they are pretty sure to bathe in the basins ; so that a scrutiny of any feathers left in the water may indentify a visit paid by some wandering buzzard, peregrine, or other falcon, that has managed to escape the notice of both eye and ear.

Of Hut-circles there are numerous examples near at hand ; on the slope between Rough Tor and the monument ; on Scaddick Hill ; Carne Down ; and Hendra. One specimen only—at the eastern foot of Brown Willy—has the domed roof remaining ; this may be relatively modern, as it is much smaller than the usual type, and is a solitary hut, which is rather suspicious, unless we may suppose it to have belonged to the last of the prehistorics. Usually these huts are found clustered near together, either within or contiguous to the small but massive wall-ruins of oblong cattle pens ; they are to be looked for on that slope of a hill lying towards the South East or North East, the builders having selected such a site, partly no doubt so as to be sheltered from the Western gales, and partly, perhaps, so as to face the quarter whence danger was anticipated. For these British villages give one the idea of having been made not only for a permanent occupation, but with a view to protection from foes, human and animal, as may be well noticed on Scaddick and Carne Down. The base of a typical hut consists of an outer and inner circle of large unhewn blocks, frequently triangular, set on edge, with the heavier ends well bedded in the soil ; both circles leaning inwards towards the centre, shewing that the interior of the hut presented no perpendicular walling, but contracted from the ground. Of course the space between the circles was filled in, and horizontal courses laid thereupon. Perhaps not more than six or seven feet high inside,

the elevation was increased by having the floor much hollowed out below the outside ground-level. Agreeing as to their circular construction, they differ largely in area, as for example on Carne Down, where some are about 14 feet in diameter, others 26, and two 42 and 44 feet respectively. It seems unlikely the latter could ever have been roofed in; their use is not apparent, (for there are numerous angular enclosures which would do for cattle), unless they may have served as council chambers for the tribe. With the cattle close by, safe within their thick walls, and the people themselves within ear-shot of each other, and commanding a good view of an approaching enemy, these villages must have been very fair fortresses, almost impregnable to men and wolves.

It is natural to connect with these villages those flints so plentifully met with on the moors. There appear to have been manufactories of flint tools here and there; for pieces of the stone varying in size from the unbroken nodule to the smallest fragment, are found in larger quantities in some limited areas than over the general surface; though stray chips are turned up almost anywhere, when cutting peat, etc. I have had some hundreds of pieces brought me, among which are knives, scrapers, arrowheads, and one celt; these have undoubtedly been manufactured, but the greater part of the specimens are merely natural or accidental chippings, fractured without method or design. Recently on lifting a block of granite on Trewint Tor a "pint" of flakes were exposed, deposited in a heap under the rock; these may have been rough material for gun-flints or strike lights, put there and forgotten; they had not been worked in any way after being chipped from the nodule. Those arrowheads which I have seen are exceedingly small, but carefully chipped all over. Some years since a bronze spear-head was found under six feet of gravel in the stream work below Jamaica Inn; it is now at Tavistock. Occasionally Piskey grinding stones (whorls) have been turned up by the plough; but of these I have not yet secured any examples.

Charms are still in use by the simple-minded, for thrush, warts, and various complaints; also for the cure of cattle, when some evil disposed person has "turned a figure upon" (i.e.

bewitched) them; and white witches,—those who avert the evil eye,—have not yet ceased out of the land. Of Amulets mention must be made of certain small crystal balls, called *kinning stones*,—held in high esteem for the cure of ailments of the eye—which are to be compared with similar stones in use among the Irish for the benefit of diseased cattle. Frequent mention is made, and good illustrations have been given of some of these objects of popular veneration, in back volumes of the *Journal of the Royal Hist. and Arch. Society of Ireland*, to be seen on the shelves of our library at Truro; and some interesting remarks in connexion with white pebbles as found in barrows, and used as amulets, appear in the number of that *Journal* for April, 1887, pp. 61—3. I examined one of these *kinning stones* recently, which had been lent to a person with a bad eye, who, on recovering from his ailment, had returned it to the owner. It proved to be a translucent blueish-white globular crystal, about  $1\frac{1}{4}$  inch in diameter; in texture, horny rather than vitreous; apparently not made of glass, but perhaps of rock crystal; pierced by a hole, and the hole containing a boot lace for suspension; having *striæ* running through the substance of the crystal perpendicular to the hole. It had been for many generations in possession of the family of the owner, who valued it very highly, “but was willing to lend it to anyone to do good.” This kind of amulet is worn around the neck, the bad eye being struck with the crystal every morning; but they do not appear to be ever used for cattle, in which respect they differ from those in Ireland. There are other *kinning stones* within reach, but examples are not common; their virtues are familiar to the people, and instances are to be met with among the country folk, where recovery from a “*kinning*” in the eye (“*kennel*,” in the West of Cornwall) is attributed solely to the use of these charms.

Those interested in ferns and wild flowers may be reminded that *Lastroea oriolatris* is common hereabouts; the Beech fern is to be found on Brown Willy; also the *Hymenophyllum Tunbridg.*, by those who know where to look for it. The bogs have of course their peculiar and interesting flora, but besides being mostly very small and easily overlooked, the best bog plants seem to luxuriate where the ground is most treacherous, and



therefore defy identification; for though it would be possible to penetrate to their lair, it would be utterly impossible to get out again, as sundry strange cattle, tempted by verdant patches of herbage, occasionally find to their cost—losing their lives in the attempt to reach dainties which their fellows, familiar with the bogs, are far too wise to approach. The cultivated land just off the moor is rather a happy hunting ground for the Entomologist, swarming as it does in summer with butterflies; among which *Fritillaries* of different kinds appear to be by no means the least abundant. But the same good character cannot be given to the locality by an ornithologist. There being no heather, very little furze, and no other cover sufficient to screen a mouse, the population of the dry tracts of moor at ordinary times is limited to two meadow pipits and one skylark per square mile. An occasional harrier haunts the marshy ground near streams, where vipers chiefly resort; and a solitary heron may often be met with. In autumn a few teal and wild fowl are “squandered” over the bogs, and then a peregrine may be considered as not an unlikely visitor; while doubtless a few merlins come in with the snipe. In spring a few pairs of curlews breed—one pair to a marsh—and drive away everything else from their vicinity; sandpipers and dunlins nest more commonly in the bottoms once worked for tin; and a snipe here and there may breed in the bogs. Ring-ousels nest on Hawk’s Tor, and on Rough Tor, where they are known as “rock blackbirds.” The spotted crane regularly breeds in a certain place, and *all* the the ravens do not go to the cliffs to rear their young.\* But on the whole this is far from being a first rate district for birds; and those crows which hang about the outlying farms and tree clumps, do not tend to make matters better: veritable pirates of the air are they, exceedingly destructive, eclipsing, as bird-nesters, the most mischievous boys and even the most abandoned cats, and doing no corresponding service to compensate for their crimes.

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\* A ruff was picked up in the autumn at Davidstow; a greater spotted woodpecker was shot in the winter, in Hawk’s Wood; and a golden oriole was this spring (1888), obtained in North Hill. Two curlews’ eggs were brought to me in May, from a nest in Crowdy Marsh, said to contain six eggs. If the number given were correct, the eggs were probably the produce of two females.

**"THE PROBLEM OF THE LIZARD ROCKS."**

By E. A. WÜNSCH, F.G.S.

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The geological structure of the Lizard district may be stated, without fear of contradiction, to have been the subject of as assiduous research and earnest investigation on the part of eminent geologists of the past and present generation, as any other well known district in the British Isles.

Not only have men like Delabeche, Sedgwick, and other contemporary authorities in geology brought their lifelong experience to bear upon the subject, but before them and along with them, earnest and gifted local investigators have trodden the ground over and over again, and each has left some valuable records, some addition to the general stock of information upon the subject.

The work of the preceding generation has been taken up and carried forward by living geological investigators, prominently amongst whom figures Professor Bonney, whose several papers upon the subject, dated 1870 (?) and 1881, have become classical with the geological student. But still more recent enquirers have followed Professor Bonney, and most recently, within the recollection of the members and office bearers of this Society, who accorded such a cordial welcome to their guests of last summer, the Geologist's Association of London (headed by their President, and including some names of mark in geology), paid a special visit of investigation to the Lizard district.

A further significance of the importance of this problem of the rocks of the Lizard district, is given by the fact that the forthcoming meeting of the British Association is to take place at *Bath* (in September next), which is sufficiently close to the borders of Devon and Cornwall to make it likely that the Lizard rocks may form a prominent subject of discussion in the geological section—and may attract a number of visitors to the district at the close of the meeting,—and the interest of the subject is further heightened by the co-incidence that geologists from all parts of

the world who are expected to attend the triennial International Geological Congress in London have also received invitations to attend the Bath meeting of the British Association ; and in as-much as the most prominent subject to be discussed at the International congress is that of "*crystalline schists*," the special interest of the members is likely to be aroused in connection with a subject to which the Lizard's rocks might furnish a highly interesting contribution.

With these eventualities in view, and in a measure locally called upon to be prepared to answer questions which might be put to us in connection with the very ground under our feet, we may well ask ourselves, what answers are we prepared to give to such questions. ?

Delabeche was an admirable observer, an unassailable stratigraphical geologist, of whom it may be said, as Hugh Miller said of Sir Roderick Murchison, that when he laid down a line across a country it was laid down for ever ; but Delabeche, and Sedgwick, and Buckland, and their contemporaries belonged to the pre-chemical and pre-microscopical age of geology ; they held theories no longer tenable in their entirety,—they could read and mark down and expound to us as it were the heads of chapters—but they had not penetrated to the sub-divisions and the separate pages and the minute collateral questions which a long succession of geological workers has spelt out for us since then, and which they are even now spelling out for us more earnestly and more rapidly than ever. Admirable and painstaking as are the researches and conclusions of Professor Bonney, they are in a manner already antiquated and overlapped by more recent researches, but it could not be said of even of the most recent of these that they have either superseded former labours or established a more conclusive state of things.

Great as have been the strides of geology when measured by the last half century, they have been at an immensely accelerated rate within the last decade, and are still progressing at that rate. Chemistry, microscopy, dynamics have been concentrated upon geology, and have shed a fierce new light upon questions considered settled, or have raised entirely new issues and opened up fresh paths of enquiry.

If we look at the most characteristic rocks of the district, the serpentine, we are confronted at once by a multiplicity of divergent opinions.

Are the rocks eruptive or are they sedimentary rocks metamorphosed in situ? And whether eruptive or sedimentary, through how many stages of metamorphosis have they passed before reaching their present state? Has the metamorphosis been sudden through contact with volcanic heat, or has it been brought about through dynamic causes, enormous pressure and friction, producing heat and consequent displacement and rearrangement of particles? Or has the metamorphism been produced by what may be called the "wet process," the slow filtering in and permeating of water holding mineral solutions, and transforming and recasting the whole mass into new compounds? And if any of these causes have thus acted upon the serpentine, how are we to proceed to the analysis and true classifications of the surrounding medium, those puzzling beds of hornblendic schists, themselves a secondary metamorphic product? And if we should find a solution to this question we still remain confronted by the infinite variety and intermixture of hornblendic, chloritic, and granitic rocks, and above all by the innumerable dikes and extensive tabular masses of *Gabbro*, of which remarkable rock specimens were exhibited to you at last year's meeting by Mr. Howard Fox, F.G.S.

Sedgwick called this rock porphyritic felstone, which at all events implies some meaning, but modern geologists have adopted the name of "gabbro," which only indicates that the Cornish rock resembles another rock in Italy locally called "gabbro," and thus we have substituted one name for another without thereby explaining the nature of the thing itself.

To crown this babel of names, we are asked by some geologists to admit that a number of *granitic* dikes intersect the district and come out in the coast line. And thus is raised the question of the fundamental granite and of those beds of crystalline gneissose rocks, through which the serpentine and its agglomerates are supposed to have been ejected, or if not ejected, upon which they are supposed to lie as in a basin.

Add to this that the whole district is the mere remnant of a vanished country—that it has been denuded on the surface to the extent of probably thousands of feet—that it has been eaten into and washed away on to the coast lines to the extent of many miles, – and that what remains is shifted up and down by vertical faults to the extent of thousands of feet,—and you will then have some idea of the problem, the solution of which faces the conscientious geologist.

It is as though a shapeless “torso” had been dis-interred from some classic site and the archæologist were called upon to solve the question. Did it belong to a Hercules, a Centaur, or an Apollo? The shapeless mass would be the despair of any one not acquainted by a lifelong study with all the schools of sculpture, and with every line and wrinkle into which marble has ever been shaped by the cunning hand of man.

And in the same manner, a geologist approaching the solution of the question of the Lizard rocks ought to be armed with every possible knowledge in every department of his science, in other words, an impossibility is asked of a single man. A general, however brave and skilful, cannot storm a fortress single-handed, but he can subdue it by bringing up an army of soldiers to bear upon it and skilfully directing them, and in the same manner the hope for the solution of complicated problems in geology lies not in limited individual power, but in the combined efforts of many workers.

The geology dating from the beginning of the century, without modern chemistry, without microscopy and dynamics, bears the same relation to modern geology as the slings and arrows and wooden towers and ram-heads, as represented at the siege of a city in Assyrian sculpture bear to the long range guns, the captive ballons, the dynamite, and all the modern appliances of a modern seige. To indicate briefly only two points of approach to the question of the most recent character, I may refer to the admirable disquisition on the growth of crystals contained in the anniversary address to the Geological Society for 1887, by Professor Judd. Listening to him you begin to believe that crystals are growing and living things, and that everything is possible with them, even such transformations as we witness at

the Lizard, and all you have to do is to study the laws and watch the nature of their growth, and to apply the knowledge thus obtained to the elucidation of the mysteries of the Lizard rocks.

Add to this the most recent work of Mr. Teal in stratigraphical and microscopical geology,—with special reference to the Lizard district,—carried on in conjunction with Mr. Howard Fox, and cap it with all the information and hope, to be derived from Professor Geikie's most recent and brilliant paper on the infinite changes and plications of the crystalline rocks of the Highlands, a paper which is the outcome of the joint labours of a number of zealous and experienced workers in practical geology, and which, in conjunction with the latest ingenious experiments on the extraordinary mechanical foldings and plications of rocks under pressure, throws a flood of light not only on the actual structure of the Scottish crystalline rocks, but also on all similar rocks wherever they may occur.

I hope then to have indicated in mere outline, and perhaps not as hopefully as some may have been led to expect, the problem of the Lizard rocks. The only hope of ultimate success lies in again attacking the question from its very foundation, armed at all points and in every detail, and there is no reason for believing but that the present and rising generation of geologists will be qualified by brain, eye, and hand to do so successfully.

## TREGONNING HILL AND ITS SURROUNDINGS.

BY THE REV. S. RUNDLE.

Tregonning Hill—a purple saddle-back projection of vast proportions,—presents a fascinating subject for study. Our interest cannot fail to be excited, when we consider its vast stores of tin, and clay, and pinite of peculiarly large dimensions—its hut-circles—its entrenched camps, and underground hollows—its giants' well—its giants' lapstone, and all its legends of giants and pisgays—its gal-gals or cairns, and various remains the origin of which it is now impossible to discover—its tradition of St. Breaca's visit, and her churches in "Talmennith et Trenewith"—its conjectural appearance in Doomsday Book—the inspection of its clay deposits by Mr. Cookworthy in 1745-50—its smugglers' caves, and its signalling-station and beacon erected in the time of the last French war. Around it, or on it within a radius of three-quarters of a mile are the sites or remains of seven camps, whilst at the same distance a giant's holt or hold, and two rude Latin crosses have been discovered.

Like all lofty eminences Tregonning Hill has served as a weather-guide to its neighbourhood. Old Saws, now obsolescent, used to say :—

"Tregonning Hill wears a cap—  
Binner wood will care for that,"  
Binner wood a water-can—  
Tregonning Hill 'll be a man."

Binner Wood, about two miles off, has been demolished.

I shall not venture to raise the "vexata questio" of Cornish derivation by assigning a meaning to Tregonning. Mr. R. Hunt says that both Tregonning and Godolphin Hills have given names to two ancient Cornish families. I am very doubtful as to the correctness of his statement, as far as Tregonning Hill is concerned. There is no Cornish family of this surname with a pedigree. Col. Vivian in his Visitations of the County of Cornwall makes no mention of any such family, and gives only two persons with the surname of

Tregonan—a possible variant of Tregonning. The arms of Tregonan were “Ar. a fess between three crows sa:” but there is little to connect this family with Tregonning Hill.\* The Domesday Book under the lands held by the Earl of Moreton, says “The below written lands were taken away from St. Petrock, Bodmin. The Earl of Moreton holds them, and his men hold of him. In Tregon (in the Exeter copy Tregonan) is one virgate of land, and pays fifteen shillings by custom.” Tregonan, instead of Tregonning, is the ordinary pronunciation used by the peasantry at present. Though this holding has been identified with that of Tregonning Hill, I must say that I have not yet met with the slightest evidence in favour of this opinion. An old house was pulled down about thirty years ago, when the present unpretending farm-house was built. Its only remains appear to be a very modest lintel with the date 1696 on it, built into the walls of the present structure.

A first camp, lying due E. and W., is almost entirely perfect. It has a sally port on the E. three feet wide. The diameter of the camp is 178 feet. The vallum on the east, inside the camp has a slope of twenty-six feet, whilst its outside taken perpendicularly is 10 feet 4 inches. The width of the foss from side to side at the top is 27 feet at its greatest height. The depth of the vallum on the north is far greater than that on the east, as it is 19 feet 4 inches: very nearly double that of the other. Within the camp about the centre is a hut circle much injured, still its extent can be traced, and is twenty-eight feet across. On the N.W. close to the vallum are the remains of two more huts in a very delapidated state. On the N.W. a kind of road trends away in a north-westerly direction for some distance. It is hedged on each side by low mounds; its surface is flat, and its breadth about twelve feet.

A second camp in a most remarkable state of preservation lies to the South of the road from Tregonning to Great Work. It has a very deep circular foss, hedged in on both sides by lofty valla. On the eastern side at the upper extremity for about a

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\* Nicholas Tregonan was living in Breage Parish in the 15th year of King Henry VIII, and in a subsidy roll of that date in the Public Record Office, his goods are valued at 60/—Ed.



hundred yards the interior vallum rises in two tiers to the height of fourteen feet. The lower part is of massive stone work, whilst the upper is composed of stones and earth commingled. Each vallum shows admirable specimens of walling, wonderfully preserved, in marked contrast to neighbouring modern work, which is already falling down in places. Below a sally-port on the east is an excavation, apparently following the course of the foss. The diameter of this camp is 240 feet. The site only of another camp exists in a field in Grammar Polly's Lane tenement, whilst remains of another are to be discerned near the road from Tregonning to the top of the hill on the N.W. side.

The western summit of the hill is crowned by Castle Pencair, a circumvallation of vast proportions, which has been often described.

On the N.W. of the large camp Castle (Pencair), are the foundations of two hut-circles, sunk deep in the earth. Within this camp may be distinguished the foundations of fifteen or twenty huts.

To the east of the clay pits occurs a circular arrangement of hut-circles, five in number, equidistant from one another. They radiate round a circular cairn of small dimensions, which has a depression in its centre. The lunette position of the five hut-circles is generally to be looked for as a common feature in these villages, but here it is unusually clear, owing to the furse having been burnt away on Jubilee night, and thus presenting a space bare and open to the eye.

Further on, a particularly fine hut-circle 38 feet across, with its circular ridge of earth and stones very perfect, is visible. At a little distance lie two more. Not far from these circles some years ago a kist-vaen was found. Its four sides were each formed of a slab of granite, whilst the top and bottom were flagged with two more. It was, of course, destroyed. Within it was a "clome" vessel, which contained some crumbling bones. This has also disappeared.

The hill has two summits—one on the eastern, and the other on the western side. The western apex was known in Leland's days (1533—1552) as Pencair, and now as Castle Pencairn, or Pencair. Above it there is a large gal-gal, on the side of

one of the glacia of the camp beneath which a stone trough was discovered under the superincumbent ruins of an archaic building, something like thirty-five years ago. The trough is ovoid in form, made out of granite, 7 inches in length,  $4\frac{1}{2}$  inches wide at the top, and  $3\frac{1}{2}$  inches at the bottom. The interior is carefully hollowed with sloping sides  $\frac{1}{4}$ -in. deep; at the extremity there is an orifice. The bottom of the interior is perfectly smooth and flat. A cover fits the lower portion with great nicety, having an orifice corresponding to the first. The height of the utensil is  $2\frac{1}{2}$ -in. Traces of organic matter have been discovered about the orifice by means of a microscope. The gal-gal, beneath which the utensil was found, is known as the Giant's Lapstone. A legend informs us that a giantess following hard after a St. Wendron giant, here lost a load of stones, which she was carrying in the lap of her apron, when its string broke, and the stones fell and formed the pile. The name lap-stone is thus an elephantine pun on its supposed origin. Another story is to the effect that it was thrown thither by the giant of Godolphin Hill. According to some traditions giants were living on the hill, three generations ago. They were the enfeebled remnants of the old Cyclopean race, and were obliged to give up their former blood-thirsty habits. The last giant was blind, and it was with some difficulty that his wife prevailed on him to remain quiet. This giantess, though represented as being on the whole a quiet old body, spending most of her time in gathering "creeks" for her fire, was not above practising on the fears of her neighbours, when she went to them on begging errands. "Bee Bo-Bum" she would fiercely cry, "I will have sumpan to ait. Ef my old man were to come roun', he wud kill tha." She always used to leave money behind the "heps" of the door in exchange for gifts made her.

Perchance this giant used to quench his thirst at the giant's well. It is on the southern slope of the hill, immediately above Bal-west. It had a spiral flight of stone steps, now destroyed. It stands below a stone-wall, is circular in plan, is six feet in circumference and very shallow, and has the crumbling vestiges of stone-work. It is now dependent on the rain for its supply of water. Lake says that the S. slope of the hill is studded with tumuli; of these, after a diligent search, I can find no trace.

The giant's lapstone is much reduced in size, though even now its pile of granite "pebbles"—a term I use in default of a better one to designate their size—occupies a very respectable space. Coins have been found in it, or by it, about sixty years ago.

The Giant's holt or hold lies at the bottom of the cultivated slope of the hill near Trew village in a field in the tenancy of Mr. G. Tyacke. It is a cavern, now closed, but about seventy years ago it was open, when a flight of stone-steps could be discerned leading into it. Its site is known; and I hope to have an opportunity of re-opening it, and reporting the results to the Royal Institution of Cornwall.

The *pisgays* or small-people were once visible to a man, when they were holding a "*pisgays' fair*" on the hill. The most "*oncest gabbing*" proceeded from the group of miniature-fiddlers and others that surrounded the "*stannens*." Directly they discovered that a mortal was nigh, they vanished.

A man coming home through Bargas at the bottom of the hill could not find his house, though in his wanderings he was close to it. At length he turned his pocket inside out, when he found attached to it a *pisgay*, who burst out laughing "*Ha, Ha, Ha!*" and went away like a rat. A common term in the neighbourhood for "night-mare" is "*pisgay-roden*," and there are several accounts of the visitation of people by it, when the room has seemed to be full of a presence larger than it could bear. If a thump on some article of furniture can be given, the *pisgay* will at once depart.

Smugglers' caves are found at Tolmennor, just below the eastern declivity of the hill.

On the eastern summit of the hill a signalling station was erected in the time of the last French war, for the purpose of communicating tidings to and from the ships at sea. Its walls alone are still standing outside the premises of Mr. Sampson. A beacon also stood close at hand. Orders were given that when it was ignited, the inhabitants of the neighbourhood were to burn all their corn and fodder, and to quit their dwellings, driving their cattle before them, and leaving a desert behind them.

A Latin cross of rude design stood in Chystoddon Farm. It was seven feet six inches high, and its base squared as for insertion in a socket. Its arms are very thick and mishapen, one of them specially presenting a very hunch-backed appearance. In the centre of the transverse section are four sunken roundels arranged in the form of a Greek cross. As it was used as a gatepost, and as at any moment it might have an iron staple driven into it, I was reluctantly compelled to remove it with the pecuniary assistance of the Penzance Antiquarian Society, to the churchyard of Godolphin, where it stands in the angle of the south porch, a visible proof of the connection between the church of to-day, and that of long centuries ago.

A headless cross, *i.e.* the rounded shaft and two arms, has been used as a stop-gap in the hedge at Sparrow Cross. It is said to mark the spot where a Jew was buried, whose ghost haunts the place.

In conclusion, I should like to point out that I have refused to make any conjectures upon any of the subjects that have been described in this paper. I have also not done more than simply refer to discoveries that have been already made known by other persons. I have, however, been much assisted by the energy of two gentlemen, to whom, since they will not allow me to do it otherwise, I make this sincere tender of my thanks.

## THE ANNUAL EXCURSION, 1887.

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“To the highest point of Cornwall, viâ the Georgian Jubilee Rock, and back through Temple,” was the route appropriately chosen by the Royal Institution of Cornwall for its Autumn Excursion in the Victorian Jubilee year.

On Tuesday, the 30th of August, 1887, carriages from the County Town, and early trains from east and west, bore the excursionists with their commissariat to the rendezvous—Bodmin new Railway Terminus, opposite the Military Barracks.

In the bright appearance of the new Station and its surroundings there is nothing to remind us of the past history of the spot—but here, from the 13th century (or earlier) down to our own day, was a lonely burial ground—which for a long period pertained to a chapel dedicated to St. Nicholas. The name of this saint is still applied to the locality.

When the members of the expedition had taken their places in the vehicles which awaited them, the occupants were found to be about fifty in number. Amongst those present were:—Rev. W. Iago (President) and Mrs. Iago, Mr. Preston Wallis Pearce, Mrs. Dickinson, Col. Alms, the Misses Mary and Ada Alms, Dr. and Mrs. Elliott, Miss J. Stokes, Col. Parkyn, Mr. Webster (Bodmin), Mr. H. M. Jeffery, F.R.S., Vice-President (Falmouth), Mr. W. N. Carne (Rosemundy, St. Agnes) Mrs. Muller, Rev. H. C. and Mrs. Shuttleworth (London), Rev. E. Shuttleworth (Egloshayle), Mr. S. S. Leverton (Kent), Mr. A. G. Leverton (Tavistock), The Misses Constance and Beatrice Leverton (Truro), J. Powell (Yorkshire), M. Elder (London), M. and J. Jago, Miss Tom (Trehaverne), Miss Paul (Truro), Messrs. R. A. Fox (Wellington), F. E. Sach (Plymouth), Hancock (St. Germans), J. Barrett, H. Barrett, H. Blenkinsop, J. Bryant, W. N. Gill, A. W. Gill, Theo. Hawken, Hamilton James, C. Kent, E. Rundle, E. F. Whitley, and Major Parkyn, Honorary Secretary (Truro). The Venerable the Archdeacon of Bodmin went in his own carriage accompanied by Miss

Batchelor and the Rev. A. S. L. Sparling. The Rev. A. H. Malan (Altarnun), Messrs. W. D. Hanson, C. U. Tripp, and T. B. Burns (Camelford), also joined the party, in the course of the day.

The President having sounded the advance, the procession of carriages, at 9.30 a.m., entered Bodmin, passing the Assize Courts situate on part of the site of the old Franciscan Friary—some vestiges of which can yet be seen. Thence they proceeded towards the Church (St. Petrock's), the largest parochial edifice in the county. Stone fragments of Norman work are scattered around. The ruined Chantry of St. Thomas à Becket in the churchyard was next passed, and then the grounds on the other side of the road were noticed, in which remains of the ancient Priory have been found. Its church (dedicated to St. Mary and St. Petroc) has long since disappeared. In it was St. Petroc's shrine, the ivory reliquary of which is preserved in the custody of the Mayor of the Borough.

Continuing up the Launceston road, Bodmin was left far in the rear, with its beacon obelisk (erected in memory of the late General Sir W. R. Gilbert, of Indian renown). The ancient cross of Calliwith was pointed out, and soon the high downs were reached.

After skirting the old Race-course, Council-Barrow, and the lands of Trewardale (the residence of Mrs. Edward-Collins), some other ancient crosses were observed.

In Blisland village the carriages were driven round its central Green,—picturesque with trees. Time did not allow of a halt, although the Rector, the Archdeacon, and other clergy, were within the church (St. Prat's) hoping that it would be visited. Some of them followed later.

A narrow road leading from the village to Pendrief was entered, and gave a slight idea of the rough style of country ahead.

In spite, however, of adverse showers, stones, and ruts, which caused some merriment, the group of cottages and the boulder-strewn common beyond, were reached in safety.

Mounting the "Jubilee Rock," the President addressed his fellow travellers. He said that from the very granite of Cornwall which had been sculptured in 1810 to commemorate the Jubilee of the Queen's illustrious grandfather, the late King George III, he now had the honor and pleasure of proposing cheers for Her Most Gracious Majesty, Victoria. Her Jubilee year was being deservedly celebrated with rejoicing, for her subjects were sincerely thankful for the good influences of her beneficent reign. However glorious in the history of the country past events had been, England was now enjoying greater privileges than ever. All who stood around that rock, he felt sure, would cordially unite with him in saying "God save the Queen!" Cheers for the Queen were then heartily given, and Mr. Iago next proceeded to describe the devices on the rock. He handed around for inspection a portrait of the sculptor, the late Lieutenant John Rogers, 65th Regiment, a native of the place, and called attention to a manuscript book in which Mr. Rogers had written many memoranda relating to his family. The brass plate containing his verses was also shewn. It was formerly attached to the rock, and records that, with his recruiting party, he dined upon the rock on October 25th, 1810. The concluding lines are:—

" May blessings round your dwellings flock  
   Ye merry natives of Pendree,  
 As long as ye revere this Rock  
   In honor of our Jubilee !  
  
 May Brunswick's lov'd illustrious race  
   Still govern Britain, mild and free,  
 May after-ages in this place  
   Hold many a jovial Jubilee !  
  
 When time shall Britain's Kings remove  
   To realms of true felicity,  
 O may we share with them above  
   An everlasting Jubilee ! "

The portrait, manuscript book, and brass tablet, were brought over and exhibited by Mr. Rogers, a nephew of the sculptor, who continues to reside in one of the cottages at Pendrief.

The Rock, and the designs cut upon it, may be thus briefly described:—It is a ponderous mass of smooth granite protruding

with other blocks from the surface of Pendrief Common. If regarded as a boulder, its weight is estimated at about 150 tons. On ascending it from behind, incised devices are found upon its upper surface:—Masonic Emblems (trowel, square and compasses). Further to the front are the King's initials and date {*G. III R.*, 1810.}. Beneath these, and coming down over the face of the rock, are the rampant Lion and the Unicorn supporting the Garter, in oval, inscribed with the motto "*Honi soit qui mal y pense.*" Above the ribbon, the Crown and Royal Crest (crowned lion). The supporters stand on a label inscribed "*Dieu et mon droit.*" The other devices on the front of the rock consist of the figure of Britannia seated (holding olive branch and spear, and resting left arm on the Union Shield); the Armorial Shield of Cornwall (15 bezants in pile) with coronet and plumes above; a Hive for Industry, and a Plough for Agriculture.

A Ship, for Commerce, is said to have been also visible formerly, but the effects of wind and weather have long since caused that ship to disappear.

The sides of the rock display the armorial insignia of the local landowners—Boscawen (Lord Falmouth) and Molesworth, with their mottoes, "*Patience passe science*" (a rhyming play on the first word), and "*Sic fidem teneo.*"

Some years ago all these sculptures were renewed, and perhaps "improved upon;" and, just before the visit now being described, deeper cutting of them was being attempted. This, although well-meant, is to be regretted! Other rocks, near, also bear inscriptions placed on them by Lieut. Rogers. (An account of these is promised by the President).

Quitting this spot, from which in fine weather there is a very extensive view over land and sea, the expedition had a glimpse of the neighbouring Granite Quarries of Delank and Hantergantick. The name of Edystone has now, it is said, been given to the quarries here, as they supplied the material for the new lighthouse outside Plymouth. Delford Bridge having been crossed, the carriages soon after entered upon the open moor.

Each vehicle now seemed like a ship on a rolling, trackless, sea! Many projecting and half-sunken rocks, in unexpected



In the moor just behind Brownwilly were observed the stream and the little lake known as Fowey Well,—the source of Fowey River.

A Fogou, hitherto unexplored, lies a little further to the north in the same valley.

After viewing the weird tract which constitutes the heart of Mid-Cornwall, so wild in its utter desolation, the visitors descended for the return journey.

The voyage of rolling carriages re-commenced. Fernacre was left in its solitude. The ancient circle, huts, Arthur's Hall, &c., were re-passed, and the road once more was gained.

Wind and rain now prevailed in earnest. No halt could be made for the examination of other circles and fantastic Tors. Temple was reached. This ancient Preceptory of the Knights Templar, with its Abbey Farm and little Church of St. Catherine (long in ruins, but lately restored) excited much interest. The Rector of Helland, Rev. J. R. Brown, in whose charge the parish is, shewed the interior of the sacred building, which was much admired, and many were glad to obtain copies of his descriptive book.\*

A straight and rapid drive, past Peverel's Cross and through Pond's Conse, was then made to Bodmin, where Dinner, just after 5 p.m., was in readiness at Sandoe's Royal Hotel. This was not to be despised—and, at its conclusion, the President proposed the health of the Queen, and of the Duke and Duchess of Cornwall. There was a loyal response. He then congratulated those present on the full accomplishment of their day's programme. The Jubilee Rock and the Cornish Mountain had both been ascended, the weather clearing just at the desired moments. The excursion had been one of unusual difficulty, yet it had proved to be very pleasant and completely successful.

Mr. Stokes, Clerk of the Peace for the County, who had joined the party, then spoke in terms of eulogy of the President as an active member of the Institution, and proposed his

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\* Temple Church, by Rev. J. R. Brown, with illustrations by Rev. W. Iago, 3rd Edition, 1883.—Price 6d.

health, as well as that of the Honorary Secretary. The arrangements had devolved on both, and had been most satisfactorily performed.

The President and Major Parkyn (Hon. Sec.) responded, and the latter gave the toast of the "The Ladies," in glowing terms, after which the proceedings terminated.

The evening trains were immediately sought, and the travellers returned to their homes having enjoyed a very pleasant day's experience.



# Royal Institution of Cornwall.

FOUNDED 1818.

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THE QUEEN.

Vice-Patron.

H.R.H. THE PRINCE OF WALES, DUKE OF CORNWALL, &c., &c.

Trustees.

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## Royal Institution of Cornwall.

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### SPRING MEETING, 1888.

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The Annual Spring Meeting was held at the Rooms of the Institution, Truro, on May 24th, 1888. The Rev. W. Iago in the chair, in the absence of the President through ill health.

The Chairman delivered an address, to the following effect:—

Ladies and Gentlemen,—We hoped that Mr. Tremayne would have been able to preside here to-day, to deliver to us the annual Presidential address. We much regret his absence, and are very sorry that illness has been the cause of it. We learn, however, with satisfaction, that he will probably soon be well and amongst us again. You have been so kind as to invite me to address you in the President's stead; I will therefore offer a few remarks trusting that you will receive them with the utmost indulgence, for, until the last moment, I refrained from believing that I should really be called upon to act in this capacity to-day. I have not prepared any formal address, but, coming down in the train this morning, from Bodmin, I began to think of a few matters which might interest you, and, whilst conversing on other subjects, jotted down some hasty memoranda which I have since lost, but perhaps their details will recur to my thoughts as I proceed, and I have noted some inscriptions.

Major Parkyn, our Honorary Secretary and local main-spring, has not failed to keep me acquainted with the financial and other conditions of our Society, but before entering on such topics I would remind you that at our last Spring Meeting we were all looking forward to the celebration of the regnal Jubilee of Her Most Gracious Majesty, and as your President I commenced my address on that occasion with the heart-felt exclamation—"Long may Victoria reign!—God save the Queen!" All those present cordially joined with me in that expression of

loyal feeling, and I am sure you will all do the same now, for, the Jubilee having been happily accomplished, we commemorate to-day the anniversary of the Queen's Birthday—(applause).

We hail her Majesty as our patron, and beyond that, we gratefully recognise that our country, under her sway, has the best of rulers, governments, and laws.

We shall never forget the hundreds of bon-fires which were lighted, amid great rejoicing, at 10 o'clock on the night of the 21st of June, on the Cornish hills, whilst thousands more glowed throughout other parts of the realm. Brown-Willy the highest Cornish eminence was crowned with lurid flame which streamed on the night air.

One member of our Council was there, others were on other lofty spots, endeavouring to count the countless beacon-fires far and near. Like steady stars along the horizon the distant fires appeared.

Other interesting events followed in rapid succession. In August our Society visited the Jubilee Rock of King George III, and also Cornwall's highest point; just after receiving and welcoming the Geologists' Association in these rooms. An important ceremony took place in November, in this city of Truro, in connection with the church,—the consecration of St. Mary's Cathedral. The four\* leading ecclesiastics of the many present were, or had been, officially associated with Truro, and Cornwall's Royal Duke, our Vice-Patron, was also here.

The impetus thus given, by the highest authorities, to the work of the church in our midst, will be felt through future ages.

During the past year, in all sciences, marked progress has been made. No great Archæological or other discoveries have been reported in Cornwall, but many small ones are worthy of note.

One of the most curious occurred at Harlyn Bay (from which place the gold Lunettes in our Museum were brought). A large Urn containing a very small one, both elegant in form, with

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\* The Archbishop of Canterbury, the Bishops of Winchester, London, and Truro.

burnt bones and a bronze blade and pin, were there found by Mr. T. Hellyar. Of these I propose to insert an illustrated description in our Journal.

Roman coins are frequently unearthed, one of Tetricus (3rd century), discovered on the fore-shore of Pentewan beach, has been described by our President in a letter, which now lies before us.

He has also forwarded to the Museum the 17th century trade token of Bonython\* found in Mevagissey church. To this I add one of Trewillow † of Truro.

Two Seals of Clerics have attracted my special notice. One || is a circular bronze seal (Wm. Julian's), now in my possession; the other § is an impression of vesica form (P. Pantin's), attached to a deed, relating to St. Mary's, Truro, dated 1394. Its principal device is a pelican in her piety, a well-known sacred emblem, representing Christ giving himself for the life of others.

A representation of this, carved in stone, occurs over St. Austell church porch, accompanied by an inscription ‡ which has occasioned much speculation as to its meaning. The letters KYOH have been considered suggestive of the Greek words KYRIOS and CHRISTOS; whilst the following, INRI, have been taken for the Latin "Jesus Nazareus Rex Judæorum" (the title put upon the Cross). One reader supposed that the words meant Richard the second! but now it seems that the legend is probably Cornish, and refers to the mystical feeding act in which the Pelican is engaged. On this subject also I hope to contribute a paper to the Journal.

Some documents have come to hand which are of local interest. One is a copy of the Will of King Alfred (c. A.D. 880-5), which seems to shew that he held land in Cornwall.

\* Obv. 3 Fleurs-de-lis, (1 & 2) IAMES BONYTHON. Reverse {<sup>B.</sup><sub>I.M.</sub>} OF MAVEGISIE, 1651.

† Obv. Crowned Rose, THOMAS TREWILLOW. Reverse, 3 owls (2 & 1), IN TREWROW, 1667. (Arms of Trewolla).

|| S'GVILL'I IVLIANI CL'ICI. Arms, a cross patée (potent?) between 3 cinquefoils (roses voided?)

§ S'PHILIPI PANTIN CLERICI, Estoile, and Pelican on elevated nest.

‡ Figured by Lysons, plate XVII.



The other gives us a list of the possessions granted to the Black Prince, as Duke of Cornwall,—his castles, &c., in the county being mentioned, with many details.

With regard to the former document I would remark that a clear identification of King Alfred's property is being sought. He bequeathed "lands at Strætneat, or Stratnet, in Triconschire." Most likely Stratton\* in Cornwall is meant, Trigg-shire having it seems been more extensive than the district known as Trigg, Trigg-major and Trigg-minor, of later time. Stratton and Lesnewth I find were included in it. It is not likely that, by Stret-neat, St. Neot was meant, for altho' the saint is known to have been one who was connected with Alfred, and that king is said to have visited the parish now called by his name, it was known then as St. Guerrier's, and was called Hamstoke, Neot-stoke, Neotstow, and St. Neot's, afterwards †.

Whilst on the subject of documents let me here observe that old dusty accumulations are sometimes of more value than some people suppose. I once found in a deserted loft in Bodmin an extensive collection of papers, some loose, others tied in bundles, which had fallen through the decayed floor and lay on the ceiling of a large room below. A mason had already carted away many of them and had shot them as rubbish into a quarry. I examined what were left, separating them from the numerous stiffened bodies of dried-up rats which were mingled with them. On sorting the papers I found that they related chiefly to two families which had long been resident in the town, and included also several Wills, Codicils, and a variety of legal documents which had been borrowed from the Court of Probate, and had not been returned (in consequence of the death of the borrower). I allotted them to those who appeared to have a claim to them. The official deeds I restored to the proper authorities, after shewing them to Sir John Maclean. Some papers were merely curious, and no special owner was indicated. They formed a strange medley. Of this class some displayed interesting seals and signatures, and others contained prices of commodities (tea one guinea a pound), &c., also quaint details of squabbles,

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\* See Stubbs's *Constit. Hist.*, paragraph 45 in i, 100, (1874).

† Michell's *St. Neot*, p. 5.

ecclesiastical and civil, occurrences related in antiquated news-sheets, &c. Wrecking was one of the subjects dealt with; and I noticed a counsel's brief drawn up on behalf of a lady whose husband was accused of ill-treating her. To show his character it was alleged against him that he was a man of so violent a temper that even the tax-gatherers paid his taxes for him out of their own pockets rather than apply to him for the amounts when due. There was also part of a list of French prisoners with certain details for their detention under a commissary in Bodmin. It seems that such prisoners, some of whom were officers of good education, were allowed a certain freedom on parole, and it has struck me that a prisoner of this description, attached perhaps to some dépôt in Devon, may have cut the inscription in Okehampton Castle which has been regarded as a mystery. When I saw that inscription, thirty-two years ago, on the piscina of the ruined chapel, it appeared to be "Hic V [&c] fuit captivus belli, 1809." in plain mixed letters, not antique in style. A recent observer states that he reads the figures 1509. I cannot decide as to the correctness of this, without renewed inspection, and merely suggest that the letters if originally 1809, may have been altered by being re-cut deeper.

Again, with regard to records, it will perhaps be allowed for me here to refer to glimpses which the old Parish Registers sometimes afford of the excitements prevailing at particular times. It is well-known, for instance, that at Lostwithiel, during the great Rebellion, Cromwell's troops on a certain occasion occupied the church and baptised an old horse Charles in derision of the king, and they also vainly tried to shoot, or smoke-out, some royalists who had taken refuge in the tower. It is therefore not to be wondered at if we find the registers incomplete at about that period, and we may reasonably expect to find some allusions to recent and current events interpolated amidst more regular entries in the books of neighbouring parishes. The Lanlivery Register supplies us with something of this kind. A poetical attempt on the part of the Royalist Vicar (Wm. Collyer?) therein appears, indicating his dismay at the king's violent death and at the rule of his foes, also his hope of better things under a restoration of monarchy. Some portions of the parchment have perished, consequently the words commencing the first few lines

are lost. The spelling throughout is very quaint, to give a general idea of the composition I will omit this peculiarity and supply, within brackets, just a sufficient number of words to complete the sense. The words so enclosed are, of course, conjectural, but represent as nearly as possible those which have been lost:—

“ [Tears flow’d when] eyes of nations saw cut down  
 “ [The glorious] roses all of England’s crown !  
 “ [Could nought a]vail to stop that fatal blow,  
 “ [The wou]nd of one,—a general overthrow ?  
 “ [Nought ! i]f the dear entreaties of a wife  
 “ [Beseeching] them ‘ O spare my husband’s life,’  
 “ Aid not his subjects sighs, nor children’s cries,  
 “ Such tears should move, as fall from princes’ eyes !  
 “ So sith those could do little, nought at all,  
 “ With those that rose so fast by his sad fall,  
 “ Blest Charles and best, yet thou has chang’d a crown  
 “ That all the Roundheads’ malice can’t cut down.  
 “ Nor had they thee, but that they clearly saw  
 “ Thou had’st but too much reason, too much law,  
 “ To plead thy cause, to justify their guilt.  
 “ Were’t not for this, thy blood had ne’er been spilt.  
 “ Most we can do thee now, were it our choice,  
 “ Is now to mourn as fast as foes rejoice.  
 “ Grief ne’er was counted sin, ere this, nor verse  
 “ Written in tears upon a sovereign’s hearse.  
 “ Your hearts o’ercharg’d with sorrows, at last must  
 “ Resolve on this :—either to vent or bu’st.  
 “ Sith thou art gone, we ne’er can hope to see  
 “ Or find, in one, what we have lost in thee.  
 “ Till, Phoenix-like, there riseth fro’ thy Line  
 “ a Second Charles, that is, Charles the Prime !  
 “ Then, then, may we enjoy those happy days again,  
 “ Which rebels’ swords shall never cut in twain.  
 “ Else, farewell hopes ! our joys are set, undone,  
 “ Unless revived by this Rising Sun,  
 “ Which ne’er shall be eclips’d but mount as high  
 “ As earth can wish,—Hence to eternity ! ”

But neither parish Registers nor stones, in connection with our churches and churchyards, are expected to supply any very perfect poetry.

An instance, here and there, is met with, of exceeding well-written lines, one\* such occurs on a slate monument in Bodmin church, but the generality are of the most crude description.

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\* In memory of Cecily Achym, 1639, née Ward.

A glance at Mylor churchyard supplies us with two peculiar specimens, which are short and somewhat pathetic:—

One, dated 1814, describes the death of a man of Flushing, (T.J.), shot by a Custom-house Officer, who probably regarded him as a smuggler:—

“ We have not a moment we can call our own—  
 “ Officious zeal, in luckless hour, laid wait,  
 “ And, wilful, sent the murd’rous ball of fate !  
 “ James to his home, which late in health he left,  
 “ Wounded returns ;—of life is soon bereft ! ”

The other commemorates a shipwright who died in 1770:—

“ Ala/s Frend Joseph. His end war\* Allmost Sudden,  
 As thou the Mandate came Express from heaven.  
 his foot it Slip. And he did fall  
 help help he cries. & that was all.

Several inscriptions published in important works relating to Cornwall, are found, on careful inspection, to have been incorrectly read ; and thus, in one † instance, the christian name of “ Jowdy ” has been by error introduced (instead of Loveday) into a family record.

But we will turn to the Poets.

The modern elegance of a Hawker (who, alas ! has passed away), and the poetic excellence of the writings of Mr. Stokes, refresh those who love good verse. In contributing to our collection of portraits of authors connected with Cornwall, I have asked for, and have fortunately obtained, those of the two last named well known writers ; and the Council will doubtless be pleased to give them honorable places on our walls.

The Library and other collections of the Institution are becoming continually more valuable, and the Catalogue of Books has been correspondingly improved. Still, a well-tabulated list of other objects is needed for easy reference, especially in the Museum.

Some attempt should also be made to obtain a clue to the identity of the Egyptian Mummy. Egyptologists have, of late, identified many important personages amongst the mummies,

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\* Altered to “ wear,” for “ were ” or “ was.” “ Thou ” in the next line stands for “ though.”

† Durant at Bodmin.

and if the hieroglyphics on the two fine mummy-cases in the Truro Museum be studied, the mummy taken from them, now lying under glass, may be found to be someone of note. It is desirable that our Institution should ascertain at least the name and rank of the deceased. The late Admiral Tucker, of Trematon, presented us with the mummy and its cases, and in January of this year the curious contents of his Castle and its museum were sold by auction. Amongst other things disposed of was the mummy-cloth belonging to this body. On making enquiries, with the view of obtaining it for deposit with the cases at Truro, I failed to trace it, but was informed, by one who had seen it, that it bore no marks which would have assisted in the identification.

The large Portrait of Anthony Payne, of Stratton, the Cornish Giant, painted by Sir Godfrey Kneller and described by Hawker, was also included in the Trematon sale. It would be a matter for regret if it were removed from the county. For the present, I am informed, it\* will remain at the Castle.

Besides the Mummy, another object of rather ghastly character, in our Museum, is of questionable identity if judged merely by its appearance, which resembles a couple of oak-galls hollowed out to receive a ring and a coin which lie within. The description of this small object is plain as far as statement is concerned. In the manuscript catalogue† of the Laregan collection (from which it was taken) Mr. Borlase thus described the object for his own information:—

“No. 196. Two balls made of the ashes of the Queen of Siam, after her incineration. and given to Sir John Bowring, who gave them to me. One contains a coin, the other a ring.”

But it is time that I should allude to the condition of the Royal Institution itself. We regret the loss of several valued members who have died since last spring. Their names are familiar to you, and they gave great help to our Society.

Of our surviving members many have exerted themselves to promote the welfare of the Institution. Gifts have been made

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\* It has been purchased since by Mr. Robert Harvey and has been, by him, presented to our Institution.

† In R. I. of C. Library.

from time to time, and those of our friends who are in foreign countries have shewn their practical interest in what we aim at.

Astronomy, perhaps, has not hitherto received from us the attention it deserves, but, acting on Mr. H. M. Whitley's advice, the Council has sent the large Telescope to an eminent firm of opticians for complete restoration and improvement. Mr. Whitley has been requested to keep a sharp eye on celestial phenomena, by means of it ; and he has kindly undertaken to do this in the interest of the Institution, and has promised to report on such astronomical matters as may be suitable for notice in our Journal.

The funds of the Society are in a satisfactory state. All liabilities having been met, some outlay has been justified in furthering the study of science. With this end in view, books and various objects have been acquired, and others will, in course of time, be obtained. On the whole, then, the members of the Royal Institution of Cornwall may be congratulated on its prosperous and progressive state.

The following papers were then read :—

“Tregonning Hill and its Surroundings.”—Rev. S. Rundle, M.A.

“Lanyhorn Castle and its Lords.”—H. Michell Whitley, F.G.S.

“The Problem of the Lizard Rocks.”—E. A. Wunsch, F.G.S.

“The Total Eclipse of the Moon on Jan. 28th, 1888.”—H. Michell Whitley, F.G.S.

Votes of thanks were passed to the Authors of Papers and Donors to the Library and Museum, and to the Chairman for his Address.

## Royal Institution of Cornwall.

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### 70TH ANNUAL GENERAL MEETING.

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The Annual Meeting of the Royal Institution of Cornwall, was held on Nov. 27th, 1888, at the Rooms of the Institution, the President, Mr. John Tremayne, in the chair.

The Minutes of the last meeting having been read and confirmed, the Secretary read the following

#### REPORT OF THE COUNCIL.

In presenting the 70th Annual Report and Balance Sheet of the Royal Institution of Cornwall, the Council congratulates the members on the increased interest taken in the welfare of the Society, as shewn by the more numerous presents made to its Library and Museum, and by the greater number of visitors who have applied for admission to view its collections.

With sincere regret must be recorded the deaths during the past year, of the following five members:—Mr. G. L. Basset, of Tehidy, Mr. W. H. Pole-Carew, of Antony, Rev. W. Borlase, of Zennor, Mr. E. G. Spry, and Mr. J. R. Netherton.

By the death of Mr. Basset, Cornwall has lost one who was well known for his kind and liberal support of the institutions of the county. This Society was the recipient of his bounty a short time since by the presentation of Tonkin's, Whitaker's, and other Manuscripts, which form an important acquisition to the Library.

Mr. W. H. Pole-Carew was also favorably known throughout the county for his good and amiable qualities, beneficial influence and kind actions. He was a member of many years standing.

The Rev. W. Borlase, also an old subscriber, was willing to render to the Institution any assistance in his power, and on two or three occasions, when the Annual Excursions were held in his neighbourhood, he received the members with courtesy and attention.

Mr. E. G. Spry, as a Member of the Council was very painstaking in his duties, and took a lively interest in all that concerned the Institution. He was ever ready to give a helping hand to whatever might conduce to its benefit.

Mr. J. R. Netherton, too, was an old friend and subscriber, and from time to time rendered it good service.

There has been a decline in the number of members since the last annual meeting, arising from deaths, removals and withdrawals. It therefore behoves all the members of the society, and especially the Council, to take some steps to repair the losses thus occasioned. To this end they should use their influence amongst their friends, and invite more of the gentlemen of the county to become subscribers.

There has been a substantial increase in the number of visitors to the Museum. This is gratifying, as an evidence that the rich collection of objects is increasingly valued by the general public.

Arrangements have been made by the Curator to re-arrange, at an early date, the greater part of the contents of the Museum; to bring the classification up to present date, so that the objects numerically strong in many of the departments, unique and of surpassing interest in others, which they represent, may be more in touch with recent researches. It will be sought to make the groups tell their own history, for which purpose letterpress and pictorial descriptions, maps, osteological disarticulations, dissections, and other methods of demonstration will be introduced.

The Council would be glad to receive gifts from members of the Institution to promote this. Skulls of birds, amongst other objects, would further this desirable exposition.

The Admissions to the Museum during the past year have been :—



Free.. .. .	2,544
By Ticket .. .. .	46
By Payment .. .. .	458
	<hr/>
	3,048
	<hr/>

The following presents, amongst others, are gratefully acknowledged:—

A large and varied collection of Weapons, Ornaments, and Shells, acquired in the Fiji and Friendly Islands by the late Rev. Robert Young (for some years a resident in Truro), and kindly presented by his daughter, Miss Young.

A beautiful specimen of Witherite, from the Pennant Mine, St. Asaph, given by Dr. Le Neve Foster, formerly one of our honorary secretaries, who has thus shewn that he is still not unmindful of our Institution.

One of Fairfax's cannon balls, presented by Mr. John Burton, of Falmouth, supplementing his many previous valuable gifts.

Several large cases of Corals, Sponges, Shells, and other objects, many collected during a residence at Barbadoes. Mrs. Sharp, of London, in making this handsome gift, has intimated that a further donation of Minerals, Fossils, &c., will follow.

During the coming winter the Curator proposes to give effect to the wish of the Council, expressed in the annual report two years ago, that the contents of the Museum should be illustrated by lectures. He will give explanatory addresses on certain groups of objects as an introduction to their study.

The Council trusts that efforts of this kind will meet with the approval and co-operation of the members and their friends.

The donations to the Library, during the year, have been unusually extensive, and several learned Societies with which we have not hitherto exchanged Proceedings have expressed a wish for such an exchange in future.

Efforts are still being made to complete certain sets of Proceedings and Transactions, portions of which are upon our shelves.

We are specially indebted to the Government of the United States for many valuable publications. The Monograph (xii) of their Geological Survey of the Geology and Mining Industry of Leadville, Colorado, and the magnificent Atlas which accompanies it, are of great value to the Institution.

Through the kindness and courtesy of the Council of the Geological Society of London, we have received a present of the first ten volumes of their Journal. This puts our library in possession of a full and complete set, up to date, of that most useful publication.

Thanks are also due to the following:—Mr. J. H. James, for five volumes of Latham's Birds, completing the series in our library; Mr. Tangye, of Glendorgal, for a copy of Christmas Carols, ancient and modern, compiled by W. Sandys, F.S.A.; Mr. Newcombe, our late Curator, for a copy of Richard Lander's Travels, a work interesting to Cornishmen, and particularly to inhabitants of Truro.

Amongst books acquired by purchase may be mentioned a copy (in three volumes) of the *Bibliotheca Cornubiensis*, by Boase and Courtney. This, as a work of reference, has been much appreciated by our members.

The Council has observed with pleasure that the value of the Library has been more fully recognized, a greater number of books having been used on loan.

Since the last annual meeting, Nos. 33 and 34 of the "Journal" have been published. The former contains an exhaustive paper on the Early Topography of Falmouth, illustrated by maps in reduced facsimile, the writer being Mr. H. M. Jeffery, one of our Vice-Presidents. Mr. Robert Harvey contributed to the same number a paper on the manufacture of Nitrate of Soda in Chili, a subject of great importance in the present day, especially to the agricultural world. In addition to these must be mentioned the admirable address delivered by the Rev. W. Iago, President in the Jubileo year of Her Most Gracious Majesty, the Patron of this Royal Institution. Journal No. 34 opens with an illustrated description of the Sub-Marine Forest-bed at Portmellin, by Mr. N. Whitley. This, besides being generally interesting, is an instructive geological

record. Mr. Beringer's article on John Mayow, chemist and physician, contains pleasant reading, as does also the paper by Mr. H. Michell Whitley, on Sir Henry De Bodrugan. Mr. Jeffery quotes the Petition from St. Mawes asking to be allowed to rebuild the old Chapel-of-ease. The Rev. S. Rundle writes of Tregonning Hill and its Surroundings, also on Cornishisms in Ancient Literature. Mr. Wunsch arouses geological speculations in a refreshing way when treating of the Lizard rocks. An archæological paper of value, with illustrations, relating to the neighbourhood of Brown Willy, is from the able pen of the Rev. A. H. Malan,—and a paper on the Tywardreth Priors reminds us of the wide area over which our Journal is read—for this account was received for insertion from Melbourne, Australia, where the writer of it, Mr. Sincock, resides.

The Annual Excursion took place on Tuesday, 5th of September. The route selected was from Marazion to Pengerrick Castle, Germoe, Tregonning Hill, Godolphin Hall, Breage, and Helston. The party, numbering, about 40, assembled at the Marazion station, and proceeded to the castle, where the Rev. W. S. Lach-Szyrma related the legend connected with the spot, gathered from the old people of the neighbourhood. Germoe was next reached, where luncheon was provided, after which the church was inspected, and St. Germoe's Chair, under the guidance of the Rev. W. A. Osborne, the curate in charge. On Tregonning Hill being attained, one of the finest views in West Cornwall was seen, embracing the country from St. Agnes nearly to the Land's End. Godolphin Hall was next visited by the kind permission of Mr. Rosewarne, who shewed the excursionists over the place, including the gardens. After the party had been photographed by the Rev. A. H. Malan, a start was made for Helston. Breage Church, which contains the largest bell in Cornwall, and also the tomb of Margaret Godolphin the famous Maid of Honour, was to have been visited, but time did not permit. The proceedings were brought to a close by a dinner at the Angel Hotel, Helston.

During the winter, Monthly Meetings have been held, at which many instructive papers have been read.

With regard to Meteorology, probably some of our Members may have observed that Mr. G. S. Symons, the eminent meteorologist, found in the Jenyns Library at Bath, during the recent visit of the British Association to that city, a Meteorological Manuscript Register, which gave the daily records kept by the Rev. James Corve, at Sunbury Vicarage, Middlesex, from 1795 to 1839. Mr. Symons states that this covers a period respecting which there has been much uncertainty as to both temperature and rainfall, and he thinks it worth while to appeal for funds to publish it. This appeal certainly enhances the value of certain weather records which our own Institution possesses, which not only cover the period in the Corve's Register, but date from 1765, a period 30 years in advance of it.

Our own registers may be thus briefly summarized:—

Observations by Mr. Gregor, Trewarthenick, 1765 — 1782

[A gap of 4 years].

„	„	Mr. James, Redruth..	..	1787 — 1806
„	„	Mr. E. C. Giddy	.. ..	1807 — 1827
„	„	Mr. Moyle, Helston ..	..	1827 — 1840
„	„	Royal Institution of Cornwall		1840 — 1888

It would be interesting to get a record from our own county for the years 1783—1786.

Our Curator has somewhat popularized our weather observations by forwarding to the local and Plymouth papers a short sketch of the value of a light or heavy rainfall, as regards those dwelling in the immediate vicinity; and his estimates and comparisons have elicited favorable comment.

Through the liberality of Mr. Robert Harvey, an effort is being\* made to secure for this Institution the celebrated painting by Sir Godfrey Kneller, of the Cornish Giant, Anthony Payne.

The Refracting Telescope, presented by the late Mrs. Taunton, is being put in order. Messrs. Cooke & Sons, of York, the eminent opticians, examined the instrument and reported that it was well worth repairing, and furnishing with a new object glass. It has been placed in their hands for such improvement.

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\* Eventually successful.

and on its completion will be employed in astronomical work, the results of which will be contributed from time to time to the Journal.

The Henwood Medal and the conditions attached to its award must next claim notice. The medal is to be of gold, and has to be awarded in the third year next after the purchase of the dies. The dies were procured on the 8th July, 1887. It will thus be seen that before this report appears in the Journal more than half of the time will have expired. It is therefore for the Council to consider what steps if any shall be taken to make more generally known how quickly the time is approaching when the first medal will be awarded.

In the appointment of a new Curator, the choice of the Council fell upon Mr. Henry Crowther, formerly of the Leeds Museum and of the Yorkshire Geological Society. He entered on his duties in October. Being a specialist in biology, conchology, geology, and microscopic science, and having had a special training in the newer methods of museum arrangements, it is hoped that the many treasures in our Museum in his charge, will be brought into that prominence which they deserve. As a science teacher and lecturer, Mr. Crowther is known in Yorkshire and Lancashire. The members and friends of our Institution will have the benefit of his experience, and considering that the city of Truro is fast becoming the educational centre of Cornwall, the Institution is fortunate in having secured the services of a Curator who will be able to place its collections on a level with modern requirements.

The Council would here desire to express the sincere regret felt by all at the loss sustained by the retirement, through illness and age, of the late Curator Mr. William Newcombe. After a period of 34 years' service in this Institution, he carries with him the highest esteem and deepest sympathy of all those with whom he has been so long and intimately connected. To trace the incidents which have occurred during his term of office, would be to give an epitome of the progress of the Institution; he and it, having had, as it were, one existence for the third part of a century. In an Institution like our own, where it is desirable to meet exactly the wishes of the various members who form it,

the withdrawal of such a central figure is very much felt. It seems as if in the absence of the late Curator the key-note of many a relic in our collection must be dumb. The Council feels it cannot allow one who has so long and faithfully served it to depart without putting on record the high appreciation of his services, and the sorrow felt at the afflictions which have made it necessary for him to resign, nor could it let so valued an old servant leave without making him some slight allowance for his support during his declining years.

The President having been elected for two years has still one more year to serve. The Council proposes the election of the following, as Vice-Presidents for the ensuing year :—Dr. Jago, F.R.S., Rev. Canon Moor, M.R.A.S., Mr. H. M. Jeffery, F.R.S., Sir Warington W. Smyth, F.R.S., and Rev. W. Iago, B.A. (L.S. Soc. Ant.); as other Members of the Council, the Venerable Archdeacon Cornish, M.A., Mr. Howard Fox, F.G.S., Mr. Hamilton James, M.P.S., Mr. H. S. Leverton, M.R.C.S., Rev. A. H. Malan, M.A., Mr. R. M. Paul, M.A., Rev. S. Rundle, M.A., Mr. R. Tweedy, Rev. A. R. Tomlinson, M.A., and Mr. N. Whitley, F.R.Met.S. As Treasurer, Mr. Arthur Willyams, and as Honorary Secretaries, Mr. H. Michell Whitley, F.G.S., and Major Parkyn, F.G.S.

The income for the year has amounted to £213 19s. 7d., to which has been added the balance from last year £23 19s. 2d.; whilst the expenditure has been £184 13s. 9d., leaving a credit balance of £53 5s. 0d. in the bankers' hands.

The following Balance Sheet has been prepared by the Treasurer.

Dr. Mr. A. G. Williams, Treasurer, in account with the Royal Institution of Cornwall. Cr.

1887.		1888.	
July 31st.	To Balance brought forward ... ..	By Curator's Salary... ..	July 31st.
1888.			
July 31st.	.. Annual Subscriptions, Donations, Arrears } 130 9 6 and Illustration Fund     ... .. .. H.R.H. The Prince of Wales ... .. 20 0 0 .. Mr. Robert Harvey ... .. 10 10 0 .. Visitors' Fees ... .. 8 4 0 .. Sale of Journals ... .. 6 18 1 .. Interest on Deposit Notes ... .. 36 11 0 .. Dulau & Co. ... .. 0 6 0 .. Transfer of Shares ... .. 1 1 0	.. Geological Journal ... .. 1 0 0 ..     "     Record ... .. 0 10 10 .. Fire Insurance ... .. 2 14 0 .. Meteorological Society ... .. 1 0 0 .. Nature ... .. 1 7 6 .. Postages and Parcels, &c. ... .. 11 9 11 .. Ray Society ... .. 1 1 0 .. Western Antiquary ... .. 0 9 0 .. Zoologist ... .. 0 12 0 .. Books purchased at the Laregan Sale... .. 11 11 7 .. Taxes ... .. 2 13 4 .. Rainfall, &c. ... .. 0 10 0 .. Museum Expenses... .. 14 13 9 .. Printing, &c. ... .. 70 1 4 .. Repairs to Buildings ... .. 12 19 2 .. Sundries ... .. 6 19 4 Balance... .. 53 5 0	
£ 237 18 9		£ 237 18 9	

On the motion of Mr. John James, seconded by Mr. T. L. Dorrington, it was resolved that the report be received, adopted, and printed.

The following papers were then read:—

“The Drift of the Plymouth Hoe.”—N. Whitley, F.R.Met.S.

“The Physical Geology of Ore Deposits.”—J. H. Collins, F.G.S.

“The Romans at Tamar Mouth.”—R. N. Worth, F.G.S.

In the discussion that followed the reading of this paper, the Rev. W. Iago remarked that Stratton meant street-town, or a town on a street—street being used wherever the Romans had a road. Roman viæ were named streets, and he thought there was strong evidence that they were to be identified with the names of some of the places along the north coast of Cornwall, showing the Romans had a road there, which probably extended into the far west. There might have been a road on the southern part of the county as indicated by the giants' hedge. There were also remains of camps at Bodmin and elsewhere, which were undoubtedly Roman, and tended to shew where the Roman streets lay. They were rectangular and differed from other camps in the county. They might trace the Roman road further than Stratton, for they found it extending west under the name of Plain-street. It ran parallel to the north coast from the neighbourhood of Forrabury, and along by Endellion. There were no houses on the road, neither did it require houses to make a Roman street. He also pointed out that a great number of Roman coins and pottery had been found in places not mentioned in the paper, which perhaps bore out the theory that the Romans had a regular way of trafficking through the county from one end to the other by roads, which were a continuation of the roads further up the country. The President pointed out that the old turnpike road between Launceston and Okehampton passed through a place which was called “Old Street” on the map, and which he had heard spoken of as an old Roman road, and, if so, it was one no doubt which led into the county of Cornwall. Mr. H. M. Jeffery differed from Mr. Worth as regarded his account, which held the idea



that the coins indicated simple traffic ; as evidenced by the finding of the "Penance" coins, which appeared to have been the contents of a military chest. Mr. H. Fox supported Mr. Jeffery's views. The Rev. W. Iago said there had been contents of military chests found in different parts of Cornwall.

"Volcanoes on the South West Coast of Cornwall."—T. Clark.

"Godolphin and the Godolphins."—H. Michell Whitley, F.G.S.

A vote of thanks was passed to the Authors of Papers and to the Donors to the Museum and Library, and it was resolved that the members named in the report be the Council for the ensuing year.

The meeting concluded with a vote of thanks to the President.

In the evening a conversazione was held, when the following subjects were brought forward by the Rev. W. Iago, the Past President, viz:—"Account of the discovery of Athelstan's Bell at Lanhydrock, with remarks on the most ancient bells of Cornwall" (illustrated with diagrams), and "Sketch of the Historical Fragment of Oak at St. Germans, upon which the Arms of the See of Truro were founded by the Heralds' College."

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Summary of Meteorological Observations at Truro, in Lat. 50° 17' N., Long. 5° 4' W., for the year 1888,  
from Registers kept at the Royal Institution of Cornwall.

MONTHLY MEANS OF THE BAROMETER. Cistern 43 feet above mean sea level.																			
1888.	Month.	Mean pressure corrected to 32 deg. Fahr. at sea level.			Mean of monthly means.	Mean correction for diurnal range.	True mean of monthly means.	Mean force of vapour.	Mean pressure of dry air.	Corrected absolute maximum observed.	Day.	Corrected absolute minimum observed.	Day.	Extreme range for the month.	Mean diurnal range.	Greatest range from 9 a.m. to 9 p.m.	Day.	Greatest range in any consecutive 24 hours.	Between which days it occurred.
		9 a.m.	3 p.m.	9 p.m.															
	January	ins. 30·200	ins. 30·188	ins. 30·200	ins. 30·196	·004	ins. 30·192	·245	ins. 29·952	ins. 30·630	10	ins. 29·291	2	ins. 1·339	·009	ins. ·32	5	ins. ·38	5 & 6
	February	30·029	30·013	30·036	30·026	·003	30·023	·203	29·825	30·398	5	29·551	19	0·847	·080	·36	18	·35	9 & 10
	March ...	29·653	29·648	29·650	29·650	·007	29·643	·219	29·424	30·286	21	29·066	27	1·220	·111	·42	22	·70	29 & 30
	April .....	29·917	29·908	29·900	29·908	·004	29·904	·260	29·947	30·248	6	29·513	30	0·735	·073	·34	28	·42	27 & 28
	May .....	30·038	30·043	30·055	30·045	·003	30·042	·323	29·724	30·438	12	29·434	16	1·004	·076	·28	1	·60	19 & 20
	June .....	29·917	29·931	29·894	29·914	·001	29·913	·387	29·531	30·210	1	29·537	8	0·673	·070	·22	9	·49	11 & 12
	July .....	29·807	29·801	29·804	29·804	·002	29·802	·408	29·388	30·207	13	29·477	16	0·730	·086	·28	22	·45	27 & 28
	August ...	30·024	30·031	30·034	30·030	·004	30·026	·417	29·582	30·324	31	29·241	18	1·083	·073	·18	5	·30	23 & 24
	September	30·175	30·167	30·150	30·164	·004	30·160	·396	29·468	30·455	12	29·847	29	0·608	·048	·13	8	·34	1 & 2
	October...	30·043	30·024	30·050	30·039	·006	30·033	·313	29·732	30·348	15	29·270	7	1·078	·069	·26	6	·38	5 & 6
	November	29·738	29·726	29·720	29·728	·004	29·724	·276	29·456	30·346	23	29·178	29	1·168	·140	·25	6	·65	21 & 22
	December	29·886	29·897	29·933	29·905	·003	29·902	·260	29·673	30·420	16	29·157	22	1·263	·102	·50	8	·42	13 & 14
	Means ...	29·952	29·948	29·952	29·951	·004	29·947	·309	29·642	30·359		29·380		0·979	·078	·29		·45	

REMARKS.—The Barometer used is a Standard, made by Barrow, and compared with the Standard Barometer at the Royal Observatory, Greenwich, by Mr. Glashier. The corrections for Index Error (+0·308), Capillarity (+0·013), height above sea (43 feet), and temperature, have been applied.

TABLE No. 2

1888.		MONTHLY MEANS OF THE THERMOMETER.																																							
Month.	9 a.m.				3 p.m.				9 p.m.				MASON'S HYGROMETER.								SELF REGISTERING.						ABSOLUTE.														
	Dry Bulb.		Wet Bulb.		Dry Bulb.		Wet Bulb.		Dry Bulb.		Wet Bulb.		Mean of Dry Bulb.		Mean correction for diurnal range.		True mean of Dry Bulb.		Mean of Wet Bulb.		Mean correction for diurnal range.		Mean temp. of evaporation.		Wet Therm. below dry.		Mean dew point.		Dew point below Dry Therm.		Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp.	Correction for the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.
January	43.0	41.0	46.3	43.0	41.6	40.4	43.6	0.4	43.2	41.5	0.3	41.2	2.0	30.9	4.8	48.0	37.8	42.9	0.1	42.8	10.2	55	18	8	80	25															
February	38.5	36.5	43.6	40.4	37.9	36.4	40.0	0.7	39.3	37.7	0.5	37.2	2.1	34.0	6.0	44.5	33.1	38.8	0.1	38.7	11.4	54	19	5	2	35															
March	43.0	40.6	46.6	42.5	40.0	37.7	43.2	1.0	42.2	40.0	0.6	39.4	2.8	36.6	6.3	48.0	35.3	41.1	0.2	40.9	12.7	55	25	6	2	30															
April	47.8	44.7	50.9	46.2	44.9	43.0	47.2	1.6	45.6	44.6	1.3	43.3	2.3	40.9	4.8	53.0	39.5	46.0	0.1	45.9	13.5	59	27	13	9	32															
May	56.8	51.2	60.5	52.3	53.8	50.9	57.0	2.3	54.7	51.5	1.4	50.1	4.6	46.8	10.2	63.0	44.1	53.7	0.8	52.9	18.6	76	32	23	15	41															
June	61.0	55.8	63.0	56.7	58.0	55.3	60.6	2.9	57.7	55.9	1.7	54.2	3.5	51.8	8.8	66.0	50.1	58.0	0.3	57.7	15.9	74	37	2	14	37															
July	61.0	56.3	64.8	57.3	58.8	56.4	61.5	2.1	59.4	56.7	1.2	55.5	3.9	53.2	7.3	65.3	52.0	58.6	0.3	58.3	13.8	72	43	6	14	29															
August	62.4	57.5	65.3	58.3	59.5	58.8	62.4	2.0	60.4	58.2	1.2	57.0	3.4	53.5	8.9	67.5	52.1	59.8	0.3	59.5	15.4	76	41	7	14	35															
September	59.5	55.0	63.8	57.3	57.3	55.1	60.2	1.7	58.5	55.8	0.9	54.9	3.6	52.5	7.7	65.6	49.2	57.4	0.2	57.2	16.4	73	36	15	12	37															
October	52.5	48.7	57.7	51.9	52.7	49.8	54.5	0.8	53.7	50.0	0.6	49.4	4.3	46.3	8.2	58.9	43.6	51.1	0.4	50.7	15.3	69	30	28	15	39															
November	52.1	47.4	52.9	48.9	49.2	44.5	51.4	0.6	50.8	47.0	0.5	46.5	4.3	42.5	8.9	55.0	42.4	48.5	0.1	48.4	12.6	63	33	15	11	30															
December	48.0	45.0	50.2	46.5	47.0	42.6	48.5	0.2	48.3	44.7	0.3	44.4	3.9	40.5	8.0	52.7	38.0	45.0	0.0	45.0	11.7	59	23	8	31	28															
Means	52.1	48.3	55.4	50.1	50.0	47.6	52.5	1.4	51.1	48.6	0.9	47.7	3.4	44.1	7.5	57.3	43.1	50.1	0.2	49.8	14.1	65	30																		

The Thermometers are placed on the roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1888.		WINDS.																										
Month.	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
	9 a.m.	9 p.m.	9 a.m.	9 a.m.	9 p.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 p.m.	9 a.m.	9 p.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.	9 a.m.	9 p.m.		
January	2	3	3	7	8	6	2	5	6	3	4	3	5	2	1	4	3	4	1	2	5	7	4	3	2.1	2.8	1.8	2.3
February	2	2	7	0	0	0	1	1	0	1	0	0	1	3	1	1	5	5	6	8	9	12	9	7	2.0	3.0	1.7	2.2
March ...	1	0	1	1	0	1	0	0	0	8	9	9	4	6	3	3	5	5	5	5	9	9	8	7	2.9	3.4	2.0	2.8
April ...	1	1	4	1	3	5	1	0	1	5	1	3	4	8	2	5	7	3	3	5	10	7	5	4	2.9	3.0	2.0	2.6
May ...	1	2	2	11	7	8	1	5	4	4	3	3	6	5	5	1	4	2	2	3	5	5	4	2	2.8	2.5	1.9	2.4
June .....	1	2	1	3	5	8	7	8	7	3	1	1	5	2	2	2	7	6	5	5	3	1	4	2	2.5	2.7	1.6	2.3
July .....	0	1	0	2	1	2	3	1	1	6	7	7	4	5	6	7	10	7	9	5	8	3	2	0	3.0	3.0	1.6	2.5
August ...	0	1	1	3	3	2	6	5	6	6	6	5	8	8	8	3	4	4	2	4	4	3	1	1	2.1	2.7	1.3	2.0
September	8	10	11	1	1	1	3	2	1	5	3	3	0	3	3	4	3	2	6	6	9	3	2	0	1.8	2.3	1.0	1.7
October ...	5	5	3	1	2	5	3	1	1	4	4	4	2	2	0	8	11	8	7	5	9	1	1	1	2.1	2.7	1.9	2.4
November	1	2	1	5	4	5	0	0	1	10	10	9	4	3	2	9	7	11	0	0	0	1	4	1	2.4	2.2	2.5	2.4
December	0	0	0	4	4	2	3	2	0	13	18	20	0	0	0	5	2	3	3	0	2	3	5	4	1.5	1.6	1.5	1.5
Total ...	22	29	34	39	38	45	30	30	28	67	67	67	43	47	83	58	64	66	49	48	58	53	43	35	2.3	2.6	1.7	2.2
Means ...	1.8	2.4	2.8	3.2	3.2	3.7	2.5	2.5	2.4	5.6	5.6	5.6	3.6	3.9	2.7	4.8	5.3	5.4	4.1	4.0	4.8	4.8	3.6	2.9	0.19	0.22	0.14	0.18

The force of the Wind is estimated on a scale from 0 to 6, from calm to violent storm.

TABLE No. 2.

MONTHLY MEANS OF THE THERMOMETER.																											
1888.	Month.	MASON'S HYGROMETER.								SELF REGISTERING.							ABSOLUTE.										
		9 a.m.		3 p.m.		9 p.m.		Mean of Dry Bulb.	Mean correction for diurnal range.	True mean of Dry Bulb.	Mean of Wet Bulb.	Mean correction for diurnal range.	Mean temp. of evaporation.	Wet Therm. below dry.	Mean dew point.	Dew point below Dry Therm.	Mean of all the Maxima.	Mean of all the Minima.	Approximate mean temp. the month.	Adopted mean temp.	Daily mean range.	Maximum.	Day.	Minimum.	Day.	Range.	
	January	43.0	41.0	46.3	43.0	41.6	40.4	43.6	0.4	43.2	41.5	0.3	41.2	2.0	30.9	4.8	48.0	37.8	42.9	0.1	42.8	10.2	55	18	30	25	
	February	38.5	36.5	43.6	40.4	37.9	36.4	40.0	0.7	39.3	37.7	0.5	37.2	2.1	34.0	6.0	44.5	33.1	38.8	0.1	38.7	11.4	54	19	2	35	
	March	43.0	40.6	46.6	42.5	40.0	37.7	43.2	1.0	42.2	40.0	0.6	39.4	2.8	36.6	6.3	48.0	35.3	41.1	0.2	40.9	12.7	55	25	6	30	
	April	47.8	44.7	50.9	46.2	44.9	43.0	47.2	1.6	45.6	44.6	1.3	43.3	2.3	40.9	4.8	53.0	39.5	46.0	0.1	45.9	13.5	59	27	9	32	
	May	56.8	51.2	60.5	52.3	53.8	50.9	57.0	2.3	54.7	51.5	1.4	50.1	4.6	46.8	10.2	63.0	44.1	53.7	0.8	52.9	18.6	76	32	15	41	
	June	61.0	55.8	63.0	56.7	58.0	55.3	60.6	2.9	57.7	55.9	1.7	54.2	3.5	51.8	8.8	66.0	50.1	58.0	0.3	57.7	15.9	74	37	2	37	
	July	61.0	56.3	64.8	57.3	58.8	56.4	61.5	2.1	59.4	56.7	1.2	55.5	3.9	53.2	7.3	65.3	52.0	58.6	0.3	58.3	13.3	72	43	14	29	
	August	62.4	57.5	65.3	58.3	59.5	58.8	62.4	2.0	60.4	58.2	1.2	57.0	3.4	53.5	8.9	67.5	52.1	59.8	0.3	59.5	15.4	76	41	14	35	
	September	59.5	55.0	63.8	57.3	57.3	55.1	60.2	1.7	58.5	55.8	0.9	54.9	3.6	52.5	7.7	65.6	49.2	57.4	0.2	57.2	16.4	73	36	12	37	
	October	52.5	48.7	57.7	51.9	52.7	49.8	54.5	0.8	53.7	50.0	0.6	49.4	4.3	46.3	8.2	58.9	43.6	51.1	0.4	50.7	15.3	69	30	15	39	
	November	52.1	47.4	52.9	48.9	49.2	44.5	51.4	0.6	50.8	47.0	0.5	46.5	4.3	42.5	8.9	55.0	42.4	48.5	0.1	48.4	12.6	63	33	11	30	
	December	48.0	45.0	50.2	46.5	47.0	42.6	48.5	0.2	48.3	44.7	0.3	44.4	3.9	40.5	8.0	52.7	38.0	45.0	0.0	45.0	11.7	59	23	8	28	
	Means ..	52.1	48.3	55.4	50.1	50.0	47.6	52.5	1.4	51.1	48.6	0.9	47.7	3.4	44.1	7.5	57.8	43.1	50.1	0.2	49.8	14.1	65	30			

The Thermometers are placed on the roof of the Royal Institution in a wooden shed, through which the air passes freely. The Standard Wet and Dry Bulbs are by Negretti and Zambra, and have been corrected by Mr Glaisher.

TABLE No. 3.

1888.		WINDS.																										
Month.	E.			S.E.			S.			S.W.			W.			N.W.			N.			N.E.			AVERAGE FORCE.			
	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	d.	a.m.	p.m.	Mean.	
January	2	3	3	7	8	6	2	5	6	3	4	3	5	2	1	4	3	4	1	2	5	7	4	3	2.1	2.8	1.8	2.2
February	2	2	7	0	0	0	1	1	0	1	0	0	1	3	1	7	5	5	6	8	9	12	9	7	2.0	3.0	1.7	2.2
March ...	1	0	1	1	0	1	0	0	0	8	9	9	3	4	3	3	5	5	5	5	5	9	8	7	2.9	3.4	2.0	2.8
April ...	1	1	4	1	3	5	1	0	1	5	1	3	5	4	2	5	3	7	3	5	3	10	7	5	2.9	3.0	2.0	2.6
May ...	1	2	2	11	7	8	1	5	4	4	3	3	1	5	5	1	5	4	2	3	5	5	4	2	2.8	2.5	1.9	2.4
June .....	1	2	1	3	5	8	7	8	7	3	1	1	2	2	2	2	7	6	5	5	3	1	4	2	2.5	2.7	1.6	2.3
July .....	0	1	0	2	1	2	3	1	1	6	7	7	7	4	6	7	10	7	9	5	5	0	1	0	3.0	3.0	1.6	2.5
August ...	0	1	1	3	3	2	6	5	6	6	6	5	3	8	8	3	3	4	2	4	4	3	1	1	2.1	2.7	1.3	2.0
September	8	10	11	1	1	1	3	2	1	5	3	3	3	0	3	4	3	2	6	6	9	3	2	0	1.8	2.3	1.0	1.7
October ...	5	5	3	1	2	5	3	1	1	4	4	4	4	2	2	8	11	8	7	5	9	1	1	1	2.1	2.7	1.9	2.4
November	1	2	1	5	4	5	0	0	1	10	10	9	4	3	2	9	7	11	0	0	0	1	4	1	2.4	2.2	2.5	2.4
December	0	0	0	4	4	2	3	2	0	13	18	20	0	0	0	5	2	3	3	0	2	3	5	4	1.5	1.6	1.5	1.5
Total ...	22	29	34	39	38	45	30	30	28	67	67	67	43	47	33	58	64	66	49	48	58	58	43	35	2.3	2.6	1.7	2.2
Means ...	1.8	2.4	2.8	3.2	3.2	3.7	2.5	2.5	2.4	5.6	5.6	5.6	3.6	3.9	2.7	4.8	5.3	5.4	4.1	4.0	4.8	4.8	3.6	2.9	0.19	0.22	0.14	0.18

The force of the Wind is estimated on a scale from 0 to 6, from calm to violent storm.

love and in magic, things did not always work well, and instead of the young lord falling in love with the old lady, the philtre worked on the young witch Bitha. Here was a dramatic situation worthy of a transpontine drama. The old lady, finding her philtres vain, married the old lord, but her love for the young man and the witch Bitha turned to hate. She persuaded the old lord to form a plot to send off his son and sell him for a slave, but the young lord found this out, and ran away to the East, where he himself became a student of the black art and an adept in sorcery. The old lady of Pengersick turned her skill on her husband and poisoned him, Bitha, the young witch, telling him on his deathbed of his wife's evil deeds. The magic potions, however, poisoned the health of the old lady of Pengersick, and covered her skin with scales, probably leprosy, and she, on hearing of her son-in-law's return on his father's death to claim the property, drowned herself. Bitha lived on the Downs and she gained nothing by her magic, for she got fearfully ugly and her skin grew like a toad's. The young lord of Pengersick brought home with him an eastern bride, a lovely fairy-like creature as skilled in magic as himself, but seemingly of a better kind (a white witch). Often when by his enchantments in this tower he raised the storm, in the midst of the tempest the soft voice of the enchantress lady was heard accompanied by her harp, and the storm lulled. The lord was feared, the mystic lady was loved. But she never went outside the grounds and used sometimes, near Praa Sands, to sing, and the fish and the mermaids came to listen to her. The young lord had a magic horse which he brought from the east, and his old enemy, the witch of Fraddam, plotted a charm against him to poison his horse, and to drench him with enchanted liquor. The crock was laid in a narrow lane, and the witch watched for the lord to pass. He came. Pengersick whispered some words to the horse, who kicked over the tub, which was suddenly turned into a coffin, in which the witch fell, and she was carried off in it to the sea. By his charms the lord of Pengersick put down the giants of the Mount and the neighbourhood. He extended the house to a palace built by enchantment; but his glories had an end. A dark stranger came to Marazion; the stranger told no one of his business, and wandered by night on the sea shore.

Meanwhile the lord was never seen out of his castle, and no one heard the lady's harp. One night a storm arose. Pengersick Castle was on fire; the servants fled, and neither lord nor lady was ever seen in Marazion. Nearly all the palace, except the little tower disappeared, and all the splendour left only a few ashes behind. Some people said they saw the lord and lady and the stranger floating away from the castle in the air.

Praa Sands, which extend for two miles, were next visited for a few minutes, and then the Church of St. Germoe was inspected, and described by the curate (the Rev. W. A. Osborne). This proved very interesting, for the church, although now in a very dilapidated condition, is a true antiquity, and full of those things which delight the antiquary. A crucifix is over the porch. The figure of Christ is represented as is usual in 14th century work. This was pointed out, as well as several gable corbels which are grotesquely carved. The pews are of a very antiquated style with high backs, and at one corner is the old pew of the Godolphin family painted in the family colour—blue. The windows and ceiling shew signs of their age, and are fast crumbling away. In the churchyard is St. Germoe's chair, which Mr. Lach-Szyrma declared was built ages after the death of that saint, and was very probably a shrine, or erected for the convenience of the priests in churchyard ceremonies. Germoe Church appears to have been a decorated cruciform church with fifteenth century additions; the font, however, is of much earlier date.

Luncheon was provided here, and at two o'clock the journey was resumed to Tregonning Hill. From this hill one of the finest views in West Cornwall is to be obtained, and from it the country from St. Agnes nearly to the Land's End can be distinctly seen. It is 636 feet high, and on the summit is an extensive circumvallation and a cairn. Very soon after the party had reached the top a thick mist gathered around and so caused a hasty retreat. Carriages were rejoined, and the drive continued, past Great Work Mine, through Godolphin village, and the old avenue to Godolphin Hall. The Hall was inspected by permission of Mr. Rosewarne, who shewed the visitors over the place. Breage Church, which contains the largest bell in



Cornwall, and the tomb of Margaret Godolphin, the famous maid of honour, was to have been visited, but time did not permit.

Dinner was provided at the Angel Hotel, Helston, and was very acceptable after the long drive.

Train was then taken for Truro.

Royal Institution of Cornwall.

• SPRING MEETING, 1889.

The Annual Spring Meeting was held at the Rooms of the Institution, Truro, on May 20th, 1889, the President Mr. John Tremayne in the chair. There were also present the Revs. W. Iago, A. R. Tomlinson, D. G. Whitley, G. L. Church, Messrs. H. M. Jeffrey, F.R.S, Howard Fox, E. A. Wunsch, J. James (Mayor of Truro), R. H. Williams (St. Austell), N. Whitley, T. L. Dorrington, R. Tweedy, H. W. Vinter, H. S. Leverton, A. G. Langdon, E. Kitto, E. Rundle, S. Pascoe, J. Furniss, J. Lake, C. R. Parkyn, W. Tregea, A. Blenkinsop, W. G. Earthy, H. Rice, F. A. Cozens, W. J. Clyma, J. Barrett, J. Bryant, J. H. Bawden, T. Hawken, G. T. Wicks, Hamilton James, W. T. Hawking, S. Trevail; H. Michell-Whitley and Major Parkyn, Hon. Secretaries. The company also included the following ladies :—Mrs. T. Harvey, Mrs. Leverton, the Misses Barham, Iago, Tom (2), and Leverton (2). Letters regretting inability to attend were read from the Bishop of Truro, Archdeacon Cornish, Canon Moor, Rev. S. Rundle, Rev. A. H. Malan, and Messrs. A. P. Vivian, J. H. Collins, O. Carus-Wilson, and Sir Warrington W. Smyth; and a telegram was also received from the Earl of Mount Edgcumbe to the same effect.

The Secretary reported the following additions to the Library and Museum since the publication of the last Journal :—

EXCHANGES WITH OTHER SOCIETIES.

Academy of Natural Sciences of Philadelphia ... ..	Philadelphia.
Anthropological Institute of Great Britain and Ireland	London.
Bath Natural History and Antiquarian Field Club ...	Bath.
Belfast Naturalists' Field Club ... ..	Belfast.
Berwickshire Naturalists' Club... ..	Cockburnspath.
Birmingham Natural History & Microscopical Society	Birmingham.
Birmingham Philosophical Society ... ..	Birmingham.
Boston Society of Natural History ... ..	Boston, U.S.
Bristol and Gloucester Archaeological Society... ..	Gloucester.

Bristol Naturalists' Society ... ..	Bristol.
British and American Archæological Society of Rome...	Rome.
Canadian Institute ... ..	Toronto.
Colorado Scientific Society ... ..	Denver.
Cumberland and Westmoreland Association for the Advancement of Literature and Science	Carlisle.
Der K. Leop-Carol. Deutschen Academie du Naturfor- scher	Halle.
Devonshire Association ... ..	Tiverton.
Eastbourne Natural History Society .. ...	Eastbourne.
Elisha Mitchell Scientific Society ... ..	Chapel Hill, U.S.
Essex Field Club ... ..	Buckhurst Hill.
Geologists' Association ... ..	London.
Geological Society of Edinburgh ... ..	Edinburgh.
Geological Society of Glasgow ... ..	Glasgow.
Geological Society of London ... ..	London.
Greenwich Observatory .. ...	Greenwich.
Leeds Philosophical and Literary Society ... ..	Leeds.
Liverpool Literary and Philosophical Society... ..	Liverpool.
Liverpool Engineering Society ... ..	Liverpool.
Liverpool Naturalists' Field Club .. ...	Liverpool.
Liverpool Polytechnic Society ... ..	Liverpool.
London and Middlesex Archæological Society ... ..	London.
Manchester Geological Society ... ..	Manchester.
Meriden Scientific Association ... ..	Meriden, Conn., U.S.
Mining Association and Institute of Cornwall ... ..	Tuckingmill.
Mineralogical Society of Great Britain ... ..	London.
Natural History Society of Glasgow ... ..	Glasgow.
New York Academy of Sciences ... ..	New York.
North of England Institute of Mining and Mechanical Engineers	Newcastle-upon-Tyne.
Patent Office ... ..	London.
Penzance Natural History and Antiquarian Society ...	Penzance.
Philosophical Society of Glasgow ... ..	Glasgow.
Plymouth Institution ... ..	Plymouth.
Powys-land Club ... ..	Welshpool.
Quekett Microscopical Club ... ..	London.
Royal Astronomical Society ... ..	London.
Royal Cornwall Polytechnic Society... ..	Falmouth.
Royal Dublin Society ... ..	Dublin.
Royal Geological Society of Cornwall ... ..	Penzance.
Royal Geological Society of Ireland... ..	Dublin.
Royal Historical and Archæological Society of Ireland	Dublin.
Royal Institution of Great Britain ... ..	London.

Royal Irish Academy ... ..	Dublin.
Royal Physical Society of Edinburgh .. ..	Edinburgh.
Royal Society of Edinburgh ... ..	Edinburgh.
Seismological Society of Japan ... ..	Yokohama.
Smithsonian Institute ... ..	Washington.
Society of Antiquaries of London ... ..	London.
Society of Arts ... ..	London.
Somersetshire Archaeological & Natural History Society	Taunton.
Wagner Free Institute of Science ... ..	Philadelphia.
Zoological Society of London ... ..	London.
Y Cymmrodorion Society ... ..	London.
Yorkshire Geological and Polytechnic Society ... ..	Halifax.

GIFTS TO THE LIBRARY.

The Monthly Microscopical Journal, Vols. 1 to 18 ; a complete set of this valuable work, beautifully bound	Charles C. Capel, F.R.M.S., Foots Cray, Kent.
Journal of the Royal Microscopical Society, complete from Vol. 1 to Pt. 2 April, 1889, 22 Volumes	
The Journal of the Quekett Club, Vols. 1, 2, and 3 ...	J. H. James, Truro.
Copy of Kenwyn Church Rates, M.S., 1774-5 ... ..	
General Synopsis of Birds (colored plates), by J. Latham; Vols. 1, 2, 3, 4, & 5	
Short account of the Hundred of Penwith, in the County of Cornwall, by Charles Bowles, 1805	H. Martyn Jeffery, F.R.S.
Circles described about four Circles... ..	
On the Generalised Problems of Contacts ... ..	
Copy of the Charter of the Borough of Truro, 20th June, 31st of Elizabeth, 1590; and of Charter of Reginald, Earl of Cornwall	William Barrett, J.P., Truro.
Domesday Book, Cornwall .. ..	
Lunacy in Many Lands ... ..	G. A. Tucker, Sydney. William Newcombe, Truro.
Travels of Richard Lander into the interior of Central Africa	
Christmas Carols, ancient and modern, by W. Sandys, F.S.A.	Richard Tangye, Glen- dorgal, Newquay.
An Introduction to the Study of Minerals in the British Museum	
An Introduction to the Study of Meteorites, in the British Museum	L. Fletcher, F.R.S., British Museum.
Abstract of the Weather Records, Liskeard, 1864-88	
Argument on the question of the Validity of the Treaty of Limits between Costa Rica and Nicaragua	S.W.Jenkin, Liskeard. Government of Costa Rica.
Reply to the Argument of Nicaragua ... ..	
Sudbury Copper deposits ... ..	J. H. Collins, F.G.S., London.

Musical Sand... ..		C. Carus-Wilson, F.G.S., Bournemouth.
Six volumes of the <i>West Briton</i> from 1818 to 1834 ...		Thomas Worth, Truro
An English-Cornish Dictionary, by F.W. P. Jago, M.B., Lond., the original MS. copy, 1884		F. W. P. Jago, M.B., Saltash, the author.
An English-Cornish Dictionary, the second MS. copy, 1885		
English-Cornish Dictionary, as it went through the press. Also original letters about Dolly Pentreath; and uncut copy of the Dictionary		
Literal and Interlineal Translations of Ancient Cornish, including the First Chapter of Genesis, the Lord's Prayer, the Creed and the Ten Commandments		
Monthly Weather Review ... ..		The Government of the United States of America.
Summary and Review of International Meteorological Observations		
Monograph of the U.S. Geological Survey ... ..		
Bulletins Do. Do. ... ..		
Annual Report Do. Do. ... ..		The Russian Government.
Bulletins of the U.S. Geographical & Geological Survey		
Mineral Resources of the United States ... ..		
Smithsonian Report ... ..		
Atlas to accompany a Monograph on the Geology and Mining Industry of Leadville, Colorado		The Royal Society of Edinburgh.
Bulletins du Comité Géologique, S. Petersbourg ... ..		
Supplements du Bulletins du Comité Géologique, S. Petersbourg		
Mémoires du Comité Géologique, S. Petersbourg... ..		
Proceedings of the Royal Society of Edinburgh, Vols. 1 to 13		The Royal Dublin Society.
The Scientific Proceedings of the Royal Dublin Society, Volumes 1 to 6		Belfast Naturalists' Field Club.
Annual Reports and Proceedings of the Belfast Natur- alists' Field Club, 1873 to 1887		The Midland Union of Natural History Societies.
The Midland Naturalist, Vols. 9, 10, and 11 ... ..		The Academy of the Natural Sciences of Philadelphia.
Proceedings of the Academy of the Natural Sciences of Philadelphia, 1880-1-2-3		New York Academy of Sciences.
Transactions of the New York Academy of Sciences, Vols. 1-5		The Canadian Institute.
Proceedings of the Canadian Institute, Vols. 4 and 6 ...		The Quekett Club.
The Journal of the Quekett Microscopical Club, 1887-9		

Annalen des K. K. Naturhistorischen Hofmuseums ...	Austrian Government.
Quarterly Returns of Marriages, Births, and Deaths in England	Registrar General.

BOOKS PURCHASED.

Monograph of the Palæontographical Society, 1888.  
 Monograph of the Ray Society, 1888.  
 The Western Antiquary.  
 Symons's Monthly Meteorological Magazine.  
 Journal of the Meteorological Society.  
 Nature.  
 The Zoologist.  
 Science Gossip.  
 Knowledge.  
 Woodward's Manual of the Mollusca.  
 Journal of the Royal Microscopical Society.  
 Episcopal Registers of the Diocese of Exeter, by the Rev. Preb. F. C. Hingeston Randolph, M.A.  
 Whitaker's Almanack.  
 Directory of Truro.  
 Dramatic Works of Samuel Foote.

PRESENTS TO THE MUSEUM.

Portrait of Anthony Payne, painted by Sir Godfrey Kneller, 1680	Robert Harvey, J.P., London.
Plate glass and oak case to protect the Pozo pictorial inscribed stone, and turn-table to better display it	
Carved Stone-Mould, found under the Giant's Lapstone, Tregonning Hill, St. Breage	Rev. S. Rundle, M.A., Godolphin.
Four casts of Cornish Fishes; Lumpsucker, <i>Cyclopterus lumpus</i> , L.; Sole, <i>Solea vulgaris</i> , Flem.; Plaice, <i>Platessa vulgaris</i> , Flem.; and Rockling, <i>Mustela vulgaris</i> , Will.	E. Rundle, M.R.C.S., Truro.
Roman Coin, found at Gloucester ... ..	J. Hart, St. Day.
Skull of one of the Natives of the Maskyline Group of Islands, New Hebrides	Charles Barrett, Truro
Cornish specimen of Green Woodpecker, <i>Picus viridis</i> , L.	J. H. James, Truro.
Sea Urchins (6), <i>Echinus sphaera</i> , Muller ... ..	Hamilton James, Truro.
Microscopical Sections of the Pozo Stone (2) & Micaceous Gneiss, Higher Treluswell; Specimens of Copper Ore, Porthalla, St. Keverne	Thomas Clark, Truro.
Section of Limestone from near Porthalla (from Mr. Boase's specimen).	
Witherite, Pennant Mine, St. Asaph, N. Wales ... ..	Dr. C. Le Neve Foster, B.A., B.Sc., Llandudno

A large and valuable collection of Shells, some hundreds in number, containing many fine and rare forms, the classes and chief families of MOLLUSCA, of which there are specimens, are appended :—

Class, CEPHALOPODA ; Families, *Argonautidæ*, *Tenuthidæ*, *Sepiadæ*, *Spirulidæ*, *Nautilidæ*. Class, GASTEROPODA ; Families, *Strombidæ*, *Muricidæ*, *Buccinidæ*, *Conidæ*, *Volutidæ*, *Cypræidæ*, *Naticidæ*, *Pyramidellidæ*, *Cerithiadæ*, *Turritellidæ*, *Littorinidæ*, *Neritidæ*, *Turbinidæ*, *Haliotidæ*, *Fissurellidæ*, *Calyptræidæ*, *Patellidæ*, *Chitonidæ*, *Helicidæ*, *Limnæidæ*, *Auriculidæ*, *Cyclostomidæ*, *Bullidæ*. Class, CONCHIFERA ; Families, *Ostreidæ*, *Aviculidæ*, *Mytilidæ*, *Arcadæ*, *Unionidæ*, *Chamidæ*, *Tridacnidæ*, *Cardiadæ*, *Lucinidæ*, *Cycladidæ*, *Cyprinidæ*, *Veneridæ*, *Mactridæ*, *Tellinidæ*, *Solenidæ*, *Myacidæ*, *Anatinidæ*, *Gastrochænidæ*, *Pholalidæ*.

A mahogany case of Shells, worked into a geometrical design

A very fine collection of Corals and allied forms, many specimens large, and most of them in a good state of preservation, the classes and chief families of ZOOPHYTA, of which there are specimens, are appended :—

Class, HYDROZOA ; Families, *Tubulariidæ*, *Sertulariidæ*, *Milleporidæ*. Class, ANTHOZOA ; Families, *Turbinolidæ*, *Astræidæ*, *Astræinæ*, *Fungidæ*, *Poritidæ*, *Gorgonidæ*, and *Alcyonidæ*.

Several Sponges, Echinoderms, and Crustaceans ... ..

A small lot of British Birds' Eggs ... ..

Portfolios of Ferns and Sea-weeds, chiefly British ... ..

Coal Fossils from the Bristol coal-field ... ..

Polished Madreporæ from the coast of Devon ... ..

Minerals : — Galena, Fluor, Marcasite, Siderite, Quartz, Chalcopyrite, &c. ; chiefly European specimens

Baskets, Chains and Bracelets made with Mimosa Seeds

Antique Vases from Baia, near Naples ... ..

Antique Lamp from the Tomb of Scipio, Rome ... ..

Pieces of Marble and of Mosaic Pavement, and Purple-dyed Wall-plaster from Pompeii.

Model of gondola, Venice ... ..

Two highly finished Copper Medals, Pio 9th ... ..

A collection of Silver and Copper Coins, about four hundred in number, many unused, from Morocco, India, China, and several European countries.

Sacred Ibis from Egypt and many other Objects ... ..

Mrs. Sharp,  
Kensington, London.

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|--|--|
| <p><b>A choice Collection of Objects made in the Friendly and Fiji Islands, by the late Revd. Robert Young, formerly of Truro. From the Friendly Islands—Native cloth, fans, basket and lamp. From the Fiji Islands—Four war-clubs (various forms), war-horn, hatchet, adze, model of canoe, paddle, coconut rope, pillow, two spears, necklace, men's back-comb, fly-switch, palm leaf (used as a port-manteau), large shells (Cassis, &amp;c.), and money.</b></p> | <p><b>Miss Young, Truro.</b></p>                             |
| <p><b>A collection of about 200 specimens of Minerals from various parts of the world. The following are new to the Institute's collection--Tharandite, Polybasite, Emerald, Tincal, Valentinite, Nickel, Tile ore, Amalgam, Fireblende, Comptonite, Boracite, Iron-manganese-lithia Tourmaline, Berthierite, Malacone, Pegmatolite, Mellite, Lazulith, Alumocalcite, Zinnwaldite</b></p>  | <p><b>Major Parkyn, F.G.S.,<br/>Truro.</b></p>               |
| <p><b>Case of Blowpipe Minerals and Salts, in tubes ... ..</b></p>   |  |
| <p><b>Specimens of Minerals, &amp;c., from Tasmania: -Auriferous Quartz, "Lefroy"; Cassiterite, Mount Bischoff; Crystals of Cassiterite, Marie Louise Mine, Mount Cameron; Galena; Felspar with Galena, nr. Mount Bischoff; Tasmanite; Fossiliferous Limestone and Fossiliferous Shale, Quatrobe</b></p>   | <p><b>General Lefroy,<br/>Lewarne,<br/>nr. Liskeard.</b></p> |
| <p><b>Auriferous Quartz, Beconsfield, Australia; Copper-ore, West Australia.</b></p>   |  |



## THE PRESIDENT'S ADDRESS.

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Mr. Tremayne in the course of his opening address, said the justification of his accepting the position of President of this scientific institution was the fact that it had been pointed out to him that as a county institution it did not receive such personal support from the resident landowners of Cornwall as it was entitled to receive. By the great kindness of the Honorary Secretary, Major Parkyn, he had been furnished with notes having reference to the progress of the Institution during the past year. This progress was most gratifying, and as evidence of this they had only to look into the next room and see the tables occupied by the donations given during the past six months. They showed how largely diffused was the interest in the Institution, and how many friends they had, who, though not resident in the county, were associated with it by the freemasonry of science and learning. He could not help referring to the gift of Mr. Robert Harvey, of a portrait of the Cornish giant, and it was gratifying that a Truro man, though no longer residing in the county, when this record of a Cornish hero was put up in the market, stepped into the breach, purchased the picture and presented it to the Museum at the place of his old home.

There was one mournful duty he had to perform, which was to pay a tribute to those many kind friends and supporters who had departed since the previous meeting. Foremost amongst those was his friend, the late Mr. Gustavus Basset, of Tehidy, a name always honoured and revered—and deservedly so—in Cornwall. He did not know of a more enlightened, charitable gentleman than Mr. Gustavus Basset. As a country gentleman, friend, landlord, and large owner of mining property, he thought he set an example which might be followed by anybody. The Institution sustained a great loss by his death. It was not necessary to remind them of the munificent presents he had made to the Institution, which included the MSS. of Tonkin and Whitaker. He also referred to the deaths of the Rev. William Borlase, Mr. E. G. Spry, and Mr. J. R. Netherton.

Since the last meeting there had been a change in the administration of the Institution. The late Curator was obliged to resign the office in consequence of increasing years. Mr. Henry Crowther, formerly of the Leeds Museum and Yorkshire Geological Society, had been appointed in his place. If it had not been for the credentials with which he came to the office, they might be thoroughly satisfied with the appointment by the ability he had displayed for the office since he had held it. Great improvements had been effected by him, more especially in the ornithological department of the Museum. There was a great work before the Curator in the classification of the mineralogical collections.

He had to allude with pleasure to the great increase in the number of visitors to the Museum. In the twelve months ending July 31st last year, there had been just over 3,000 visitors to the Museum; in the nine months which had elapsed there had been an increase on those numbers—3,200 having visited the Museum during that time. It was gratifying that the members' families who had used the privilege of the Institution had increased over 300 per cent. It struck him that for an Institution of that kind it was little generally known throughout the county. Of late much more attention had been called by the public press to the Institution and Museum than had formerly been the case, and he thought they owed a debt of gratitude to the papers for it. They hoped at no distant date an occurrence would take place which would be the means of attracting a large number of people on periodical occasions to Truro. He could not say such would be the case, but they hoped it would. People representing large districts of Cornwall would come to see the Museum, would become supporters of the Museum, and would assist not only by membership, but draw attention to it in the various neighbourhoods they represented. It was very gratifying to see the meteorological reports periodically appearing in the public papers, it was a most important branch of science. In addition to the record kept for the Museum, the Curator prepares about 200 public reports of the weather annually. He wished to call attention to the fortnightly meetings of the Natural History Society, which are likely to attract outsiders and increase the number of subscribers to the Institution.

Speaking of Cornish Industries, he remarked that Cornish mining, it seemed to him, after going through a period of great fluctuation, was now in a better position than for some time. There was no doubt that the country had been suffering from a long and distressing period of depression, but he hoped and trusted that there was now evidence of the clouds lifting, and that all branches of trade and commerce and industry were assuming a more cheerful aspect. Last year was a curious year—a very sunless year—a year of neither extreme heat nor extreme cold—and the cereal crops were not so good as they would otherwise have been, but the Cornish agriculturist depended less year by year on the growth of cereals, and he was not so much affected last year as the agriculturists of counties where corn is more particularly grown. The root and hay crops furnished a quantity of excellent keep for animals during the winter, and they had seen that the price of fat cattle was very remunerative, and the price of store cattle exceptionally high, so that he hoped they might congratulate the agriculturists of Cornwall upon having a little more in their pockets than they had twelve months ago. The government returns shewed a gradual diminution of the stock of animals in the country—of cattle and sheep certainly. That might arise from a variety of causes; whether it arose from this fact, that the competition of live and dead meat from foreign countries had rendered it less profitable to farmers to keep the same amount of stock as formerly, he could not say; it might arise from this fact, and he hoped it did, that the English farmer was more scientific now in the breeding and selection of his animals, and he brought them to the market earlier by selecting those which could be brought to maturity at a very early age.

There was one industry in Cornwall which had begun to show development—the dairy industry, and he was of opinion that if co-operative dairies were established throughout Cornwall, such as those which have been started with such success in Denmark, they could hold their own in Cornwall against any dairy producing country in the world.

As to the fishing interest, the past season had been, he believed, one of the best pilchard seasons for many years, and

the winter had been an excellent one for the herring fishery, so that the fishermen ought to be tolerably prosperous, but he was afraid the Cornish fisherman was not a man by whom thrift and prudence were sufficiently studied. When the seasons were good they had pockets sufficiently full, but when the season was bad there was not sufficient "in the toe of the stocking" to meet the necessities of life; anything therefore to encourage thrift among the fishermen should be encouraged, and above all any system of insurance of their gear and boats, so that in case the fisherman lost either or both he would have something to commence with again instead of having lost his all. The fisherman of to-day needed to be a man of science, and the establishment of the laboratory of biology at Plymouth he held to be of great importance and advantage to those in the west, and if the fishermen could be induced to take a little scientific interest in the pursuit of their calling, and not be content to follow the old system which their fathers and forefathers had before them, he believed they would find it greatly to their interest.

Referring to the Local Government Act, he considered it a most remarkable thing, that could only have occurred in a country with such a settled constitution as England. It was most remarkable to see the power which had been vested in the hands of one class for over 500 years suddenly transferred to a different class without a murmur of any sort or kind. It was evidence of the confidence which all classes of the English people had in one another, and a great proof too of the way in which education and enlightenment had been spread more widely through all classes of society in England, and he hoped the present County Council would be guided and actuated by the same desire and spirit as their predecessors.

Science still went on with its unresisting tread, taking up fact after fact, theory after theory, solidifying them into practical shapes. What vast strides had been made in electricity! He regarded the phonograph as the most awful invention of modern days. To think that words uttered by him to-day might be brought as evidence against him or his reputation a hundred and fifty years hence! But one of the evils of the present day is evil-speaking, and it seemed to him that the phonograph was

an instrument which could be used as an efficient whip over the heads of unscrupulous speakers. Having referred to the use of electricity in regard to metallurgy, the purification of sewage, &c., he said there seemed to be no limit to the field over which it was travelling, and was destined to travel. The President also touched upon the discoveries being made in Central Africa by Stanley, to the great additional knowledge being gained of the hitherto unknown region of North Burmah; to the German explorations in Africa, to Arctic and Antarctic exploration, and concluded by referring to the great advance made in photography, which he described as the handmaid of science.

The following papers were then read :—

“The Union of the Benefices of Gluvias and Budock.”—H. M. Jeffery, F.R.S.

“Probus Church and Tower.”—H. Michell Whitley, F.G.S.

• “Pendarves Altar Slab.”—Rev. W. Iago, B.A.

“The Problem of the Lizard Rocks.”—E. A. Wünsch, F.G.S.

“The Origin and Development of Ore deposits.”—J. H. Collins, F.G.S.

“Basal Wrecks and Remnants of Extinct Volcanoes along the S.W. Coast of Cornwall.”—T. Clark.

Mr. Langdon, of London, produced some admirable drawings of Cornish crosses, which he had prepared for the purpose of dealing with Celtic ornament, and upon this subject he hoped to bring out a publication shortly.

Votes of thanks were passed unanimously to all Authors of Papers submitted to the society, to the Donors to the Museum and Library, and to the President for his address and conduct of the meeting.

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**SECTION 1.**

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**LEVEL OF  
M. WATER  
B. TIDE.**

**NEAR FALMOUTH HOTEL,  
FALMOUTH.**

ON THE ORIGIN OF THE "RAISED BEACH," AND THE CLIFF  
BOULDERS OF FALMOUTH BAY; AND OF THE DRIFT BEDS  
ON PLYMOUTH HOE.

By NICHOLAS WHITLEY, C.E., F.R.Met.S.

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On the coast-line of Falmouth Bay, and on the south of the Falmouth Hotel, a remarkable and instructive series of beds of drift have been exposed by the erosion of the coast-line by the sea; they have been described by Sir Henry de la Beche in connection with many other similar deposits on the coasts of Devon and Cornwall; and he adds that "the occurrence of flints in some of these raised-beaches, is not of easy explanation."

As the so-called "Raised Beach" immediately south of the Falmouth Hotel is now hid behind a retaining wall recently erected, I have put on record a carefully prepared section of its various beds, and having further examined this part of the coast-line westward, I found between Gyllenvase Beach and Swanpool Point three additional patches of similar deposits as shown by the following sections.

*Section No. 1, near the Falmouth Hotel.*

The beds in descending order are —

No. 1. A foot of soil with broken pieces of quartz and slate at the base, the trail; passing into,—

2. About 3 feet of clayey loam with angular pieces of crushed slate mostly pitched upright in the loam. A well-defined parting at base.

3. About 4 feet of very fine brown silicious sand, as fine as that in an hour-glass, with a few scattered stones. Well defined at the base.

4. Three to four feet of coarse silicious sand and layers of gravel, mainly of white quartz perfectly rounded, and a water-worn pebble of flint.



5. Six inches to a foot of semi-rounded, cake-like slate stones, and harder rocks of the neighbourhood. The whole resting on the broken and seaward bent edges of coarse clay-slate (probably Silurian), cemented in places by oxide of iron and manganese.

*Section No. 2* is exposed in the cliff a short distance west of Gyllenvase Beach. It shows a patch of sandy-loam and pebbles, which had been washed into a hole in the cliff, and consolidated, and now fills the fissure. Being about three quarters of a mile west of *Section No. 1*.

*Section No. 3* is about 20 yards west of *No. 2*. It shows large blocks of clay-slate perfectly angular, embedded in a matrix of sandy-loam and red sand, with perfectly rounded quartz pebbles.

*Section No. 4* is about 40 yards further west of *No. 3*, and shows a large fissure in the cliff, the upper part of which is filled with a conglomerated mass of pebbles of quartz, and sandy-loam, similar to that in the foregoing sections. The lower part, now a cavern, was probably also filled with loam and pebbles, and re-excavated by the beat of the sea.

The whole of these beds are unlike in their structure and materials, those of an ordinary sea-beach,—they contain no sea-shells, or corals, or relics of the sea; on the contrary the sand is similar to river sand, and the upper bed in which the long pebbles and fractured stones are pitched upright in the loam, is similar to that exposed in inland Sections; and more particularly to the “head” over glacial deposits.

How far these beds extended seaward, there is no direct evidence to show; but landward a similar deposit was found in excavating for the foundations of the Hotel, proving that the beds have a lateral extension, and are not of the form taken by a sea-beach.

The whole series of the deposits, appear to indicate that a diluvial flood swept over the surface of the ground from the north, after the surface of the land had received its present form; and when the outline of the coast was in its main features the same as at present.

## SECTION 2.

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### SECTION 3.

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SECTION 4.

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LEVEL OF BEACH



It is also very instructive to note that these diluvial beds mainly rest on the low crest of the narrow neck of land which unites the bold headland of Pendennis with the mainland: and that on other parts of our coast line where the same geographical features exist the same geological beds are found. Notably, at Cape Cornwall, where diluvial beds are found on each side of the narrow isthmus which unites it with the main land. At the "Island" north of St. Ives, where the narrow strait is choked with diluvial gravel capped by large detached masses of angular blocks of greenstone bedded in yellow loam. At the Towan Head, Newquay, and at Trevoze Head, where the drift beds on the isthmus contain a more than ordinary quantity of angular flints and flakes. All these beds throw a vivid light on the deposits known as "Raised-beaches," and tend to confirm their diluvial origin.

I have said that the Falmouth "Raised-beach" is of a typical character, to illustrate which I describe a section of the "Raised-beach" exposed in the face of the cliff on the south side of Spit Point, Tywardreath Bay. The beds are described in their descending order.

1. Soil of brown loam passing down into sandy yellow loam, with some rounded and angular pieces of quartz, all pitched upright in the loam. About 6 feet.

2. Beds of fine siliceous sand, with minute angular pieces of slate-rock, with horizontal layers of small quartz pebbles. About 3 feet.

3. Fine gray sand, with small pieces of quartz, and a few chalk flints. 18 inches.

4. A bed of boulders and of pebbles perfectly water-worn; with others of elvan and granite, and angular pieces of clay-slate, and also a few chalk flints. 15 inches.

5. A bed of fine arenaceous sand, with angular bits of slate, and semi-rounded pieces of quartz. 6 inches.

The whole resting on coarse yellow clay-slate. The base of No. 4 being about the level of high-water spring tides.

About a quarter of a mile westward of the above section, the same beds are exposed in the cliff, but the base of the "Raised-



beach " is about 20 feet higher than in the foregoing section, and much of the sand in these beds is composed of small plates of clay-slate, as if crushed into fragments by ice, rather than rounded by the action of water. This great variation of height in the basement bed of some of the so-called Raised-beaches appears to me to be conclusive evidence against their beach origin.

The Falmouth Raised-beach is not horizontal, but it is lowest at the narrow isthmus on which the hotel is built; and the patches of gravel in the holes of the cliffs westward are at irregular elevations above the sea.

The basement of the "Raised-beach" at Newquay rises rapidly in elevation in the face of the cliff in its extension southward. And yet more indicative is the basement form of the "Raised-beach" (so-named on the Ordnance map) at Godrevy near the N.E. corner of St. Ives Bay, where at the lowest dip of the surface of the ground the "Beach" is as low as the level of high-water, but as the land rises N. and S. the basement of the "Raised-beach" rises with the surface elevation.

The famous "Raised-beach" in Croyde Bay, North Devon, has been described by Sedgwick, Murchison, and De la Beche, as such. In 1865, I inspected the whole shore lines of the bay, from Baggy Point to Westward-ho, prepared sections of the drift-beds on the cliffs at both ends of bay, described them in detail, and expressed the opinion "that these "Raised-beaches" have been misnamed and hitherto misunderstood,—that they are in fact patches of northern drift, and bear all the legitimate marks of their origin."\*

This "Raised-beach" has been lately examined by Professor M'Kenny Hughes, M.A., Woodwardian Professor at Cambridge. He comes to the conclusion that, "the ancient beach of Saunton Down and Croyde is not a Raised-beach. The top is subærial talus,—the middle part blown sand, the base only marine, and the marine part is not above the reach of the waves of the sea at its present level."†

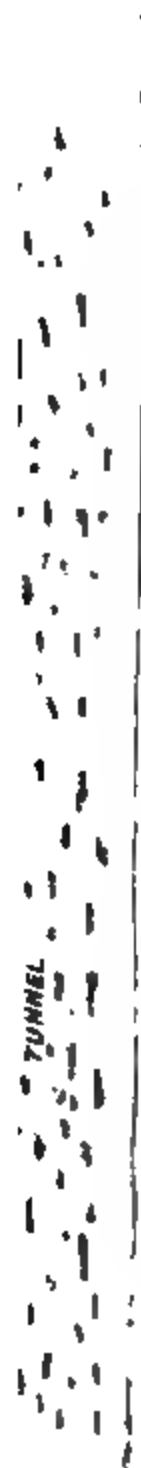
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\*"Flint implements from drift not authentic," p. 12.

† The "Quarterly Journal of the Geological Society," Nov. 1887, p. 670.



## SECTION 5.



*Patches of Quartz and other Pebbles with Clay and  
Sandy Loam, in Fissures at a Quarry, at Caldown,  
Plymouth.*

ABOUT 60 FEET

It is well that the study of geological phenomena is not confined by local limitations, for immediately beyond the boundary of our county, and over the surface of the limestone district on the south and east of Plymouth, the superficial deposits have been opened up to our observation by quarrying, more fully than in any other such limited area in the south of England, presenting most instructive vertical sections of the limestone beds, and horizontal exposures of the surface diluvial deposits.

In area the limestones extend from the Hamoaze on the west, through the towns of Devonport and Plymouth to West Sherford on the east, a distance of six miles, with an average width of three quarters of a mile. The strike of the beds is east and west, and the general dip from  $40^{\circ}$  to  $80^{\circ}$  south. Some of the beds, mainly at their northern limit, are bent—curved and upset, especially near Pomphlet; and at the northern limit of the Oreston Quarry, there is an almost vertical exposure of Slikenside, showing the great pressure arising from the slipping of one bed over another. A further remarkable feature of these limestone beds, is the large amount and size of their jointed structure. These joints may be seen in all the quarries, cutting across the strike of the beds at nearly regular intervals through a nearly perpendicular height of from 50 to 100 feet and of a width of from a few inches to 1 or 2 feet; and where the beds are most disturbed, into cavernous open cavities, some partially and others completely filled with diluvial boulders, sand, and rain-wash. The general direction of the joints is N.W., or more particularly  $20^{\circ}$  W. of N., being the present variation of the magnetic compass. And the caverns at Oreston, Pomphlet, and Cattdown, all run on these lines of joints, and must be recognised as natural cavities.

In July, 1875, I found on the western crest of the Hoe a considerable excavation showing the following section:—

1. A brown friable surface soil about one foot thick.
2. Boulders and pebbles in a confused matrix of sand and clay, of a variable depth of from one to four feet. The stones were mainly quartz, with others of blue grit and altered slate

such as occurs at the junction of the granite with the killas; also various granitoid rocks, and pieces of limestone.

3. Limestone rubble and clay, with patches of white and red siliceous sand, the grains of which under the microscope appeared rounded and water-worn.

The whole resting on the upturned edges of the Devonian limestone. And I traced the trail of these beds for a considerable distance down the slope of the hill towards the coast line.

In June, 1887, I was fortunate enough to visit the Hoe, when a large and interesting section of the same beds was laid open by the excavation for a new road up the slope of the eastern side of the Hoe, to the crest of the ground, which I carefully inspected, and after two further visits as the works progressed I prepared the section of these deposits, which I now exhibit.

It will be observed that there is no horizontal bedding of the diluvial gravel, but that it lies in patches, on the upturned broken edges of the limestone beds; and into the cavities and fissures of the limestone to an unseen depth; it was further exposed at its southern end by a pit about four feet below the surface of the newly-formed road. The face of the section of the gravel and clay strongly indicated a torrential action, large and small pebbles mixed with sand and finely pulverised clay had been carried on together, and in some parts the mass appears to have been a contorted semifluid slush. A continuation of this bed down the slopes to the then sea-shore below must have existed, whether as a raised beach or otherwise. It is, however, as a "raised-beach" thus described by Dr. Moore. He says—"It was ascertained to occupy a depression in the face of the limestone cliff a hundred feet wide and forty feet deep; its base is thirty-five feet above the present sea at high water spring tides; it runs upwards and backwards twenty feet inclining inwards with the slope of the rock, and is covered by ten feet of gravel, thus making its entire elevation sixty-five feet above the present sea-level. It is composed of fragments of rock of the neighbouring shore, such as limestone-slate, and red sandstone, and reddish porphyry, together with quantities of granite sand, which is arranged in consolidated horizontal layers or false

Sandy-Loam and Clay, in Fissures  
new Road on the west side of the

June 10<sup>th</sup> 1887. Nick Whitely.

Highest part  
of the Ho.

NORTH

LIMESTONE

LIMESTONE

exposed at the base of the subsoil,  
with brown sandy-loam.

Red Clay with well-rounded  
pebbles of Quartz, etc.

island, and from their great size and the force necessary to remove them, we may assume not only that the highest summit of Portland was submerged, but also that there must have been above it a column of water of some height and power."—*Quar. Journal of Geological Soc. of London*, Vol. xxxi, p. 50.

The late Miss Elizabeth Carne, after a careful inspection of the "cliff boulders" of the Land's End district, comes to the conclusion that "they are in our cliffs that which stream-tin is in our valleys,—the earliest record of the action of water (liquid or frozen) upon existing rocks . . . I object to call the boulders of Lamorna a raised beach, for I believe they were not washed up by the sea, but washed down from the cliff."—*Report of the Royal Geological Society of Cornwall*, 1860, pp. 372, 374.



# Lanphorn Castle.

FROM

TO THE MILL

OLD PARSON

Scale

100 FEET

H. MICHELL WHITLEY.

MAY 1889





## LANYHORN CASTLE AND ITS LORDS.

By H. MICHELL WHITLEY, F.G.S., Hon. Sec.

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On a little hillside by a spreading branch of the river Fal, in the heart of the village of Ruan, and sloping towards the southern sun, still exist some slight remains of the feudal castle of the Erchedeknes, which at one time were far more important than at present, as for many years they have served as a quarry for the building of the little village that now stands on the site.

Whitaker, who was Rector of Ruan for many years at the close of the last and commencement of the present century, has left in his MS. notes to Tonkin, now in the possession of the Society, a description of the ruins as they existed about a century ago, and it is the object of this paper to furnish some account of the noble family that once lived here, and to trace the remains of the castle, as far as they can be identified at the present time from a careful examination of the ground aided by Whitaker's MS.

The early history of the manor is difficult to trace. The Manor of Elerchi, to which Lanyhorn seems to have been attached, was held in the time of King Edward the Confessor, by Merlesuen, and at the time of the Norman Conquest was bestowed by King William on his half-brother the Earl of Moreton; it is extremely probable that it descended to his son William Earl of Moreton, who for rebellion was deprived of his lands and had to flee from the kingdom.

The manor thus reverting into the king's hands was no doubt then bestowed on one of his Knights, probably one of the Erchedeknes; the first mention of the manor and its owner that I can find occurring in 1303, when an inquisition to ascertain the true value of the lands of Thomas le Erchedekne was held at St. Austle, before Gilbert de Knoville, Thomas de la Hyde, who was Sheriff of Cornwall, and a Jury.

In 1306 Thomas de Lerchedekne petitions Parliament that his lands may be restored to him which had been taken into the King's hands by his default of service against the Scots, alleging that neither he nor his ancestors had ever before yielded such service.

It may be well to point out here the tenure on which land was held in feudal times.

The land at the Conquest, was apportioned to the various Norman knights, who joined William Duke of Normandy on his victorious expedition; and with the manors so allotted, was imposed the duty of furnishing a certain number of knights in time of war.

All these manors and lands were held of the king "in capite" by two kinds of service.

Firstly, Tenants per Baronium; these constituted the great Barons of England, Barons by tenure, who were bound to attend the great Councils of the realm. Their total number being estimated at about two hundred and fifty.

Secondly, Tenants "in capite," by knights service; this class was lower than the preceding and is supposed to have numbered about seven hundred and fifty.

"The whole feudal system was rooted in the land, and held on to it like a forest. To have so much land was to be a Baron, to be a Baron was to be liable to furnish so many Knights, to be a Knight was to hold land perhaps of the King, perhaps of a great Baron,"

The land held by a knight was called a knight's fee, of which there were about sixty thousand; in general terms it may be stated as being so much land as was sufficient to maintain the knight and his retinue, and approximately it varied between one and five hundred acres.

When an Earl or Baron held "per baronium," a large number of knights held knights' fees under him, by the service of joining his standard when required in time of war; by this means, the raising and maintaining of an army was rendered easy, and the land carried with it certain obligations, which had to be discharged by its owners.

With regard to the tenures themselves, some were merely nominal, as a red rose or a grain of cummin, others again were of more value, as a gold spur, a silver salver, or a tun of wine, and others by such service as bearing a banner in the king's army, keeping a pack of hounds, &c.

Thus the manor of Truro was held by Thomas de Prideas by the service of presenting an ivory bow at the Castle of Launceston; and Lanyhorn manor itself was held of the honour of Launceston Castle by the service of presenting a brace of greyhounds.

There is a great difficulty in identifying the early Erchedeknes, and the military writs of service cannot be appropriated with certainty, the earliest pedigree I have met with\* commencing with Odo le Archdeacon, who married Matilda.....[in appendix 1, I have given the pedigree as far as I can trace it from the best evidence.] In 1308, Thos. Lercedekne was one of the Conservators of the Peace for the County of Cornwall, and in the following year was one of the Collectors of the Tax, and again the year after served in Scotland on military service; in 1311, he was one of the supervisors of array for the county; in the next year he was governor of Tintagel Castle, and Knight of the Shire in 1313.

In 1314 Thomas Erchedekne was in the woeful fight of Bannockburn, and was there slain amongst the ten thousand knights who lost their lives, and of whom the Border ballad runs:—

“ Maidens of England long may ye mourn  
For your lemens ye have lost at Bannockburn.”

Of Odo le Erchedekne I can glean little, he is mentioned as possessing part of the manor of Ellerky in 1303.

In 1313 he was one of the Knights of the Shire, as also in 1318 and the succeeding year.

After this date I find no notice of him, and it is probable his death took place about this epoch, although no Inquisition as to the lands he held is at the Public Record Office.

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\* Harleian MS. 4031, Appendix I.

Thomas le Erchedekne, who succeeded to the estates, married twice, his second wife being Maude daughter of John Mules.\* Sir John Maclean† raises a question as to this, stating that she was undoubtedly the heiress of John De Tracy; in 1340 she presented to the Church of St. Mabyn, in 1346 she held the moiety of a Knight's fee in Trevisquite, which John De Tracy had held before; and in 1361 she again presented to St. Mabyn. To add to the difficulty, other authorities‡ state that Thomas Erchedekne married Elizabeth or Alice, daughter and coheir of Thomas de la Roche, Lord of Roche; it will probably be the safest course to follow the Harleian MS. pedigree in this respect.

Thomas le Archedekne was summoned to Parliament yearly from 1320 to 1324 by writ, and was thus created a Baron by writ, the succeeding class to Barons by Tenure, as Barons by Letters Patent have superseded the former modes of enobling. He was one of the purveyors in Cornwall to victual the king's army, and in 1321 was complained of as having committed enormities in the discharge of his trust, and in the same year he was ordered to abstain from attending the meeting of "Good Peers" illegally convened by the Earl of Lancaster to be held at Doncaster.

These were stormy times, and the homage and service of a knight for the land he held was no light duty.

As an example let us take the year 1322 and see what Thomas le Erchedekne was commanded by the king to do.

On the 6th of February he was enjoined to raise as many men at arms and foot soldiers as he could, and to hold himself in readiness to march with them to the king when summoned, which summons soon came, for he had to appear with his forces at the muster at Coventry on the first Sunday in Lent (Feb. 28), for the purpose of marching against the rebels or adherents of the Earl of Lancaster. On May 2nd he was summoned to the Parliament held at York. He was next resummoned to perform military service against the Scots, the muster being at Newcastle-on-Tyne on July 24th. On November 14th, he was commanded

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\*Harleian MS. 4031. †Notes and Queries.

‡ Banks, Dormant Baronage I, 228.

to attend the Parliament at Ripon, and on November 27th he was commanded to assemble as many men at arms as he could over and above his usual train, and to be ready to proceed against the Scots in case of invasion, and on Dec. 10th he was ordered to March to York at the head of his men at arms to be ready at the muster.

In the next year also he was summoned to perform military service in person against the Scots, and also commanded to raise as many men at arms as he could over and above his contingent due by tenure, to attend the musters at York on 24th April, and at Newcastle on Tyne on the 1st July.

These examples will show that a knight in the feudal period holding his land by no money payment to the king yet had to pay in service a heavy duty, the defence of the realm fell on the land; and the obligation was rigorously enforced.

Thomas le Ercedekne died in 1331, and at the time of his death he held Elerky manor.

Lanrihoern Manor,	} Held of the Castle of Launceston.
Landege Manor	
Bodman Manor, and	
Trebernethe Manor	

He was succeeded by his son John the second Lord, who married Cecil daughter and heir of Jordan of Haccombe or Sir Jordan Fitzpaine; and with her acquired broad lands.

He still resided at Ruan, and in 1334 obtained a charter from the King for a market on Monday weekly at his village of Shepestall in Cornwall, and a yearly fair of three days' duration on the eve, day, and morrow of Saint Margaret the virgin unless the said market and fair were hurtful to those adjoining\*; and in the same year a still more important step was taken, as he applied for and obtained a royal license to crenellate and fortify his house of Lanyhorn,† and at this date the castle if not actually rebuilt was enlarged, and thus became one of the finest and most splendid castles in Cornwall, with seven stately towers as described by Leland.

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\* Charter Rolls, 9th Ed. III.

† Patent Rolls, 9th Ed. III.

John Lerchedeken, Knight, died in 1378, leaving nine sons, Ralph, Warin, Richard, Otho, John, Robert, Martyn, Reynald, and Michell. Warin, who was knighted, married Elizabeth daughter and heir of John Talbot of Castle Richard, and left three daughters, Alienore the eldest was wedded to Sir Walter Lucy, Margeria born about 1391 and married to Sir Thos. Arundel of Tolverne, died childless October 26th, 1420, and her beautiful brass, one of the finest in Cornwall, still exists in East Anthony Church; whilst Phillipa married Sir Hugh Courteney, Knight Banneret.

From Alienore and Sir Walter Lucy descended the Lord Vaux to whose family the castle passed.

Sir Warin Lerchedekne died in 1400 and his widow in 1406. She was a wealthy woman; by the Inquisition taken at her death, she held the manors of East Tanton, Penpol, Shillingham, Elerky, Lanyhorne, Landege, Redworthy, Bodewen, Dymylock, and other manors in Essex, Shropshire, Hereford, Gloucester, Warwick, Devon, and Cornwall.

Richard the third son, who died 1408, married Joan Bosour and had one son Thomas who died s.p., and as Carew says "in whome the heirs male of this multiplyed hope tooke an end."

Of Otho, John, Robert, and Reynald I can glean nothing, but Martyn was ordained priest and was rector of St. Mawgan in Kerrier, and Canon of Exeter, Glasney, Bosham, and Crediton.

Michael the youngest son was instituted to Haccombe, 30th July, 1400, and to Grade in 1409, which he resigned on becoming chaplain in the same year.

In 1413 he resigned Haccombe, and became rector of Thorney in Sussex, having exchanged Thorney for St. Stephens in Branwell, he was collated to a Canonry at Exeter, and was Canon and Prebend of Kerswell in Crediton, and Prebend of Probus. He resigned both these on his appointment as Treasurer of Chichester Cathedral.

And here the main branch of the Erchedeknes ends, but a younger branch seems to have survived the elder.

In 1383 Walter Archdeacon was sheriff of Cornwall; in 1385 an inquisition was held on the lands of Warin Lercedekne; and in 1396 another on John son of Odo Archedekne, and in 1471 John Lerchedeken held Launceston Castle, Trebeweth, and Talgollan Manors.

So much as to the family, and I will now turn to their Castle.

The earliest mention of this is by Leland, who says in his Itinerary about 1540—That Lanyhorn Castle was once a castle of seven towers, but was then decaying for “Lak of coverture.” Tonkin states\* that in his time one of the seven towers only was standing, which was very large, and at least 50 feet in height, but was pulled down in 1718 by the rector Mr. Grant, who having obtained leave from the Lord to do so, erected several houses with the materials. Six of the seven towers were standing also within thirty years of the date at which Tonkin wrote—Whitaker† suggesting that four towers were thrown to the ground in the great storm of November, 1703, whilst two of the towers remained adjoining the water within the memory of some living in 1780.

Tradition states that the whole castle spread over the higher ground immediately to the north, and a second court, of which no traces whatever remain, extended to the north of the road leading from the Church to the Mill, but this tradition was faint in Whitaker’s time and now is entirely lost.

Tradition says also that the tower mentioned by Tonkin was round, and appears to have been the keep.

In 1780 some lofty remains stood near the brook of Ruan which were known then as “The Dungal.” A thick remnant of the Castle says Whitaker shoots up into a kind of lofty gable at least forty feet high, and in this are a couple of stone chimneys. Close to the chimney on the south was a kind of funnel in the wall about two feet wide and five deep, descending to an unknown depth in the earth.

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\* Appendix 2.

† Appendix 3.



About the middle of the 18th century the boys called this funnel "The Dungal," but it was gradually filled up with dust and sweepings from the house and then boarded over.

Under the house was a kind of cellar known as the Prison. Immediately to the west of this and connected with it was another chimney of stone shooting up in the same thickness of the wall, the fire-place was ample, and the water-table of the roof above could clearly be traced, and on the north side were the remains of a large arch for supporting the tower. So far Whitaker.

These chimneys I find still stand, but the arch and groove of the water-table are no longer to be seen. I am of opinion, however, that the work alluded to is much more modern than the date of the castle, and has no connection with it whatever. The round tower having been pulled down completely, and the materials used to build the houses.

About twenty feet to the north-west and in the boundary wall of the coal-yard still stands a fragment of the original castle wall, built of flat bedded slate-stones filled in with rubble set not in mortar but in clay, proving its antiquity; this is shewn on the plan at A, its dimensions being about 5 feet wide and 8 feet high.

This wall continued through the coal-yard, where all traces are now lost, but when the yard was being formed a furnace was discovered which would hold 100 gallons, and had four flues; a tradition of this brew-house still lingers, as the present building which has only been erected about twenty years is known as the "malt-house."

A little beyond this at the spot marked B, two parallel walls were laid bare, having only a narrow space between them. It is conjectured that this was the guarded avenue from the water-gate into the castle. The second tower of the river front stood here, and a couple of moorstone balls were found on its site, these may have been catapult balls; some iron balls have also been discovered. Close here in the yard was found in digging about the middle of the last century the fair figure of a man about 6 feet high, with his right hand raised above his head, and his

left reclining along his side, but when touched on the shoulder it dissolved into dust.

So much for the line of the castle towards the river about 175 feet in length, of which the only trace now remaining is the fragment of wall I have mentioned, and which is notable for its extreme thickness.

No traces can now be found of the west front of the castle, but Whitaker states that in his time one of the oak beams of the castle floor black with age and morticed to receive the ends of joists was found in the gutter about 1775, and was then used to keep up the bank of the roadway above. In the same gutter and at the spot marked C the foundations of the castle wall were discovered, which were traced between the line of the two northern walls, and midway between was an arch of stone through which a spring of water was discharged from the castle into the lane. No trace of these foundations can be seen at present.

The north wall of the castle is the most distinct of any, and can be traced nearly throughout its whole length, being about 5 feet in width, and corresponding in character to the portion of south wall I have previously described. Where it terminated it is extremely difficult to say exactly. An old man called Rowe who lived in the house called the Powder House, and has only recently died, stated to my brother the Rev. D. G. Whitley that he dug up cartloads of stone in his garden, and although no traces of it remain, it is probable the east wall passed through this garden to the east of the house to join the round tower below.

Having now traced the circuit of the original castle, I will return to the village well. Close to this on the north is a small cottage, whose wall is the original south wall of a range of rooms built against the north wall of the castle, and although repaired in places it is easily identified.

In this wall opposite the well is an arch in the old wall, which has been closed up and whitewashed over—this was the original castle well, but a boy having been drowned in it in the early part of the 18th century it was built up and the present well formed, and the story is still told to account for the arch.

A little further to the east is another fragment of a party wall in this range of rooms which occupied the north side of the courtyard.

The eastern range of rooms was indicated by its inner wall which existed in Whitaker's time, but now cannot with certainty be identified.

This was the original Castle of Lanyhorn, and that it was furnished with a chapel is most probable, some black and red flooring tiles being built into the walls of an out-house on the site of the Round Tower, and within the Manor Mill still remains in the Mill bed, an octagonal stone, which is so built in as to preclude its being thoroughly examined, but which is ornamented with the star ornament, roughly axed, and is probably a portion of the font of the Norman Chapel.

We have seen that in 1334 John Le Erchedekne obtained a license to fortify his house of Lanyhorn, the original castle which I have described, and from the evidence of tradition and old foundations he added to the building by erecting a higher court which extended to the north of the present roadway. Between the north wall previously mentioned and the roadway from the Church to the Mill is a long narrow garden, and here crossing it and joining the north wall, were found about 100 years ago, the foundations of several walls forming the divisions between a suite of rooms that ranged along the northern side of the north wall, and formed one side of a higher court.

This court has vanished entirely and its extent cannot therefore be determined, probably it formed a quadrangle. The foundations of the higher court differed from that of the base court in being laid in lime mortar instead of clay, thus showing the later date at which it was erected.

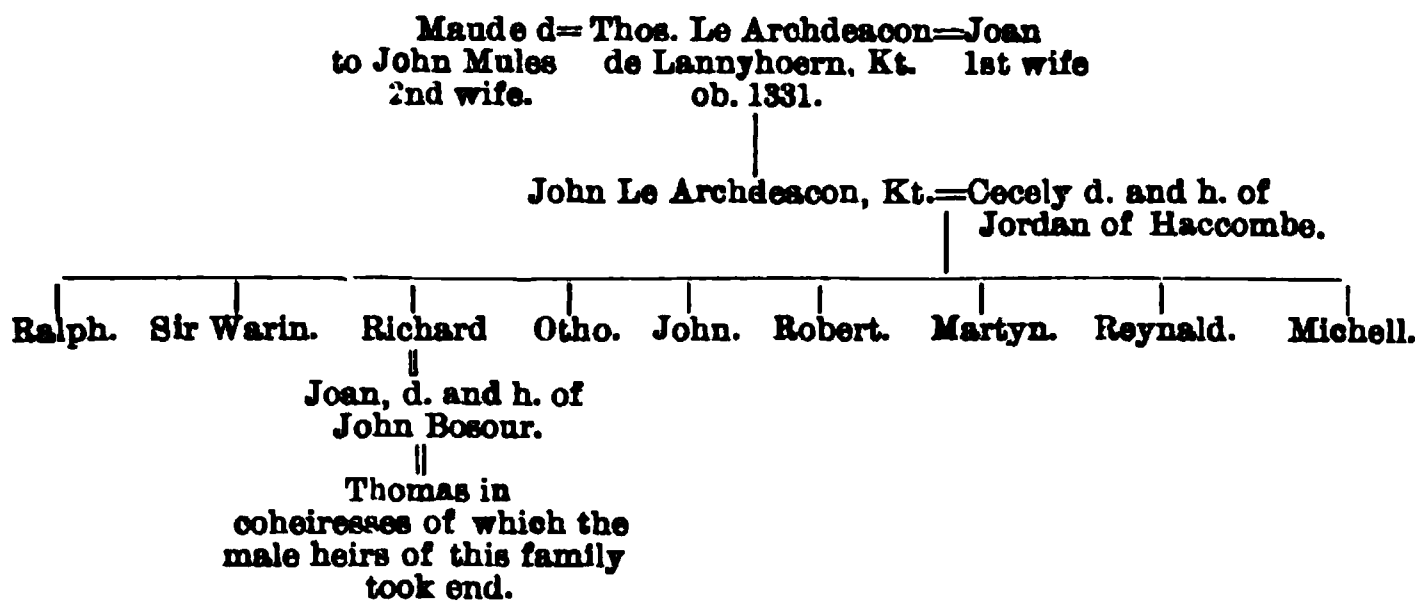
In the village itself a large number of elvan quoin stones, cope stones, etc., can be seen built up in the walls, which evidently came from the Edwardian Castle, which is clean down, and even its foundations are entirely swept away.

Whitaker in his notes states a tradition then current in Lanyhorn,—That a giant once lived in this castle and another at Tretonk, and that the giant of Lanyhorn fought with the giant of Tretonk, the weapons being stones which they hurled at each other.

# APPENDIX 1.

## PEDIGREES OF THE ERCHEDKES.

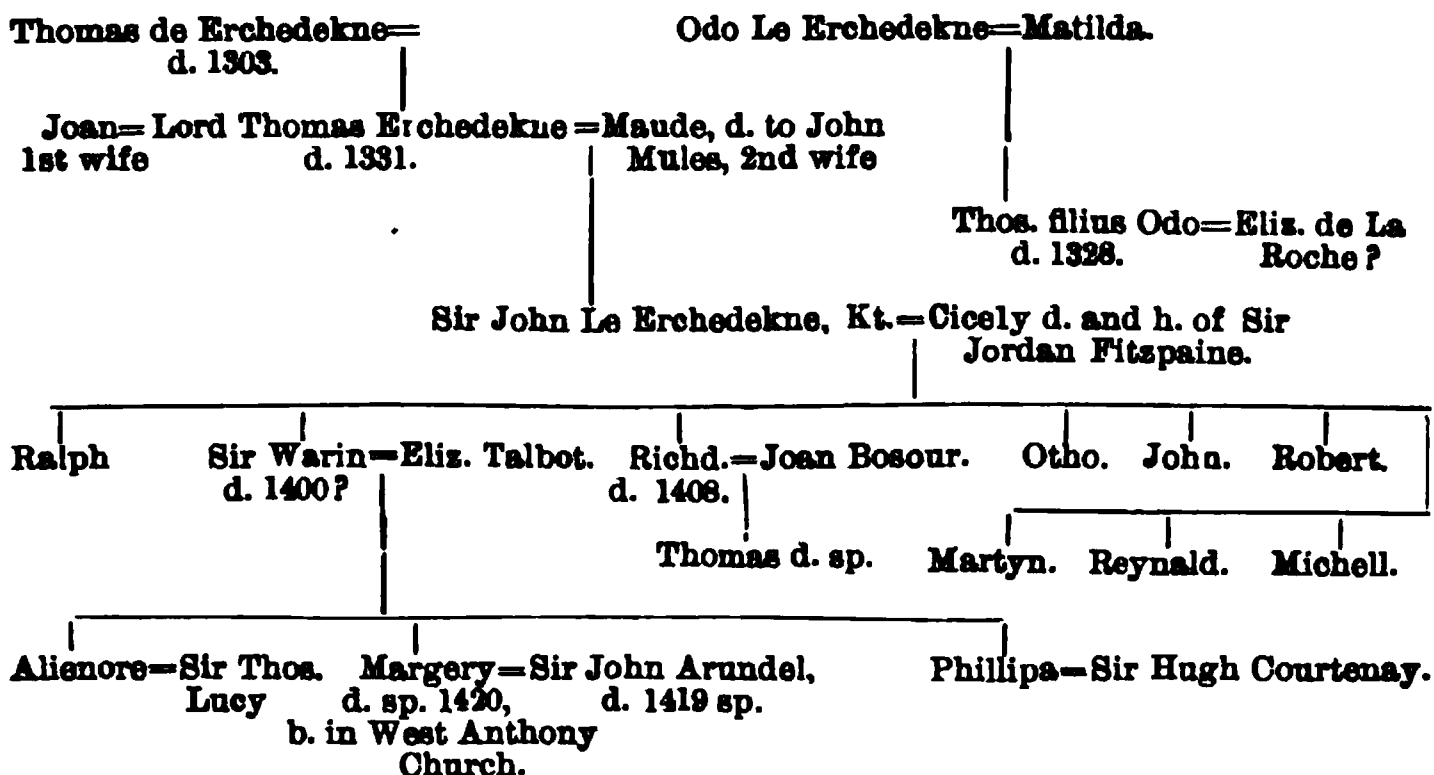
ARMS OF ERCHEDKNE—*Argent: Three Chevrons Gules.*



*Compiled from Harl. MS. 4031.*

## PEDIGREE OF THE ERCHEDKES.

*Compiled by H. Michell Whitley.*



According to another pedigree in Yeatman's History of the House of Arundel, Odo le Erchedekne married Matilda....and their son Thomas le Erchedekne married Alice daughter and coheir of Thomas de la Roche Lord of Roche, and his son was the Sir John L' Erchedekne, who married Cecilia Jordan of Haccombe.

## APPENDIX 2.

*From J. F. TONKIN.*

“Ruan Lanyhorne is in the Hundred of Powder, and is bounded to the west by Philly, to the north by the River Fale, to the east by S. Cuby, to the south by Verian.

In anno 1291 Edward the I<sup>st</sup> this Church was valued at cvi<sup>o</sup> viii<sup>d</sup>, having never been appropriated; as for the adjunct of Lanyhorne or rather Hoarne, that is the Church of Iron, I believe it took it from the castle near it, as being in those times a place of great note and strength; with this castle then, as being the principal place in the parish and the seat of the patrons, I shall begin with the description of it; which though more properly Lany-horne Castle was commonly called Ruan Castle: it stood by the south of the Church, at no great distance from it, the Rectory House being between them, in a pleasant situation enough on the edge of a creek into which a small rivulet empties itself and the river Fale, which is here of a considerable breadth when the tide is in, and surrounded formerly with woods, which are now mostly destroyed. Leland gives this account of the state of it in his time (Itin. Vol 3, fol. 12)

“From Tregony to pass doune by the body of the Haven of Falamuth to the mouth of Lanyhorne Creek or pille on the south est side of the haven is a 2 miles. This creke goith up half a mile from the principal streame of the haven.

At the hed of this creke standith the castelle of Lanyhorne sumtyme a castel of an 8 tourres [7 tourres] now decaying for lak of coverture; it longgid as principal house to the Arche-deacons. Thes landes descendid by heirs general to the best Corbetes of Shropshire, and to Vaux of Northamptonshire. Vaux part syns bought by Tregyon of Cornewaul.”

By this one may guess what a stately castle this formerly was; for in my time was only one tower of the castle standing, which was so large, that if the others were equal to it, the whole building must be of a prodigious magnitude: but I fancy this was the body of the whole, for there is not room enough about it for so great a pile: so that I believe the 8 towers mentioned

by Leland were only turrets, and appendages to this principal part. I wish I had taken a draught of it in season as I often intended ; for this too was pulled down in or about the year 1718 by Mr. Grant, who having obtained leave from the Lord to do it, erected several houses with the materials, and turned it into a little town to which ships of about 80 or 100 tons come up and supply the neighbourhood with coals, timber, etc., as the barges do with sand.

But since the writing of this I am informed that six of the eight towers were standing within these thirty years, of which that which I have mentioned was the biggest and loftiest, as being at least fifty feet in height.

This belongs to the manor of Elerchy of which I have given a full account in *S. Verian*, in which the place which gives name to it is seated, though the castle was no doubt the chief seat of its Lords.

Thomas le Archideakene was one of those that had £20 of land or rent or more 25th Edw. I. He was a knight in parliament for this County 33 Edw. I, and the 6th, 7th, 8th, Edward II, Sheriff of the County in the 7th of the same king, summoned to the House of Lords 13 Edward II. This church is a rectory valued in the King's Book at £12 : patronage in Lord Hobart as heir to Sir J. Maynard ; the incumbent Mr. Canon Grant who succeeded in 1715 Mr. John Dell, as he did his father Henry."

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### APPENDIX 3.

The Rev. John Whitaker B.D., rector of Ruan Lanyhorne, 1777, wrote elaborate notes on Tonkin's MSS., and these notes, which were in the possession of Mrs. Taunton his daughter, were in 1887 presented to the Royal Institution of Cornwall, and the following extracts contain all the facts of interest relating to the Castle, omitting Whitaker's theories.

"The contradictoriness of Mr. Tonkin's account of the castle is but too apparent ; not in the posterior information, correcting the prior ideas, but the primary and original ideas of all.

He considers the church as denominated the church of iron from the castle, this being in those times a place of great note and strength."

Whitaker remarks as to the eight towers.

“The Castle consisted only of seven towers, as Leland had corrected his 8 in the MS., these were not entire even in Leland’s time. The castle was “decaying for lak of coverture.” It had been long deserted, its roofs had fallen in, and its seven towers had already begun to moulder away into ruin, of these however, six were standing within 30 years before Mr. Tonkin’s writings or since the commencement of the present (18th) century. These had stood all the beating rains, and shaking storms of a region peculiarly exposed to the watery turbulence of the Atlantick for a whole century and a half. But they had been crumbling insensibly away under all: at last I suppose four of the six were thrown to the ground in that great storm of November which came sweeping with so much violence over the Atlantick, which has made the year 1703 so memorable in our annals by its destructiveness, and the fury of which must have been peculiarly felt here.

Two of its towers remained within the memory of some living in 1780. These were adjoining to the water, one of these was standing within the memory of Mr. Tonkin. This “was so large, that if the others were equal to it, the whole building must be of a prodigious magnitude,” and, “I wish I had taken a draught of it as I often intended;” this, however, was not the “body of the whole;” nor were the towers mentioned by Leland turrets and appendages to this principal work. This was merely “the biggest and loftiest.”

The whole castle, says tradition, spread over the higher ground, immediately to the north. This indeed makes it a large building. But so it must have been from its denomination of a castell from its being the principal house of its Lords, from the number of its towers and from the general extent assigned it by tradition.

The grand part of the castle in modern times, appears to have been that tower; which was so superior to the rest and formed a distinct fortress of itself. This, says tradition, was round in its form. It is still remembered by the appellation of the Round Tower, and the others were consequently square. This was the keep or dungeon of the castle. It was the place

in which the Lord kept the prisoners of his Baronial judicature.” “On what is now near to the brook of Ruan, and what was formerly the very margin of the tideway, stand some lofty remains which always attract the attention of a surveyor, and in which is what tradition calls the “Dungel,” and reports to have been a prison.” “Dungel then was the popular appellation among the Cornish of Ruan for the Round Tower itself; though it is now confined to its dungeon or prison. That was at least 50 feet in height within the present century. This is placed by tradition where the remains are still about 40 feet high; a thick remnant of the castle shoots up into a kind of lofty gable and in this is a couple of stone chimneys, one of them is still used in a house that has latterly obtained the name of the Music-room, from a musical society convened in it at times by Mr. Grant—but close to this chimney on the south is a kind of funnel in the wall about 2 feet wide and five deep, that comes down from the roof, is closed up in the chamber above, is all open to the earth in the ground room, and descended lately by a hole in the floor to an unknown depth in the earth.

Forty years ago the boys called this funnel the Dungel, threw stones down the uncovered hole in the floor, listened with admiration to their rattle as they descended, and then ran away with terror. All the dust of the house used more recently to be swept into it; it has thus become so much filled up in time, that a young girl used a few years ago to let herself down into it to recover anything that had fallen down it: it was then about seven feet deep, and it is now boarded over.

Under this room is a kind of cellar, used as a wash-house now, but reported by tradition to have been a Prison formerly; it was the real Dungel or Dungeon of this Castle, being then accessible only, says tradition, from above, and it must have been a dark and dismal dungeon, having no light into it at present except a little that comes in by a small lattice, in the new part of the wall over the door, having the walls thick and damp around it, and even the roof for a yard high on the north side; being accessible only by a rope or a ladder through a trap door in the floor above; and being washed every tide with the waves of the sea.”

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“Immediately over this subterranean kind of prison must the jailer have lived; The chimney of the room over the dungeon was the chimney of his house.”

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Immediately on the next side of this and connected with it is another chimney of stone, shooting up in the same substance of the wall, but having a different funnel, the fire-place of the chimney is very large, and shows the room belonging to it to have been very ample; above also and at a good height, for an ancient building in Cornwall, is the water-table of it; being a channel cut in the face of the wall for the reception of the end of a roof. This continues for a considerable way on the north, and shows the roof to have been long and sloping; on the southern side it goes off much sharper, and then is lost in the loss of the wall: and from all and from the vicinity of this building to the dungeon, I suppose it to have been the great Hall of the Castle, the room in which the baronial Court was held and the criminals of the dungeon were tried. The hearth of this chimney still remains, composed of several stones cemented together, but the chimney has been latterly contracted, repaired and provided with an oven at one side for a building that has been erected in the room of the hall that had been divided into two dwellings, and was approached by a flight of steps and a narrow access from the present wharf below. The foundation of the wall also still remains in the ground, above a yard in height, and three or four yards in length: with the solid and massy wall of the dungeon, but much less massy and solid than that. Between these two buildings rose up the Round Tower—This was so large in the eyes of Mr. Tonkin, that it seemed at first to have been the body of the “whole” and appeared at last as the biggest and loftiest of all. Just above the point of the water-table, and on the north side still are seen the evident relics of a large arch, this must have been constructed for supporting the Tower, and have been therefore accompanied with a similar arch on each of the three other sides, resting on all and rising about 10 feet higher than the present remains of the Round Tower, having two chimneys back to back, and being secured with battlements all round. This, says tradition, just before its demolition had the

jackdaws building their nests in the holes of it, and the boys by some broken steps, I suppose the ancient steps of the staircase, went up to rob them, and Mr. Grant is said when he wanted the stones of it for his buildings to have offered a mason a couple of guineas for the demolition of it, and to have afterwards marked the state of it to be so tottering that it all rested upon a single stone, then to have induced the mason without a fee to go and remove that stone, and thus almost before the mason could get away to have brought the whole fabric to the ground.

Contiguous to the Hall on the West, was the brew-house, accordingly in the coal-yard adjoining to the present garden of the Hall immediately beyond the bridge was found in making the coal-yard a place that had been built up for a furnace, this showed the capacity of the furnace by its own size, the latter must have been large enough to contain 100 gals. : a vessel of such a magnitude aptly represents to us the expensive luxury of a baronial family then, in that great and almost only liquor of baronial cellars, ale, and what corresponds with this idea of brewing, the furnace had no less than four flues to it. A little beyond this and in the way from the gate of the coal-yard to the ascent into the building there were found two walls running parallel with each other and leaving only a narrow space between them, this, no doubt was the guarded avenue from the water-gate into the body of the castle, the water-gate stood about the gate of the coal-yard, but more within the yard and in a line with the wall of the dungeon and the foundations of the Hall. The narrow avenue shows it to have had a tower over it ; a couple of moor-stone apples also have been found here, that were neatly wrought with a tool, and had once served assuredly to top the pinnacles of this tower, and though this tower was square while the first was round, it was like the first I suppose.

In the same coal-yard, but 2 or 3 yards on the west of this and near the rock now cut down into a cliff, about 40 years ago was found the skeleton of a man ; a workman employed in digging up the deep soil which lay here came running to his employer in a hurry and in wildness of wonder told him " He had found a man." The employer repaired to the place, he there saw the fair figure of a man about 6 feet high with his

right hand raised above his head and with his left reclining along his side, he advanced up to it and touched it about the shoulder and to his astonishment the whole skeleton vanished from his view at once and dissolved into dust. This person I apprehend had been employed in the same work by which he was discovered, and had been levelling the rough banks of the ground for the reception of the Castle. The ground of this had been originally as steep and as precipitous as it still remains to the west and east, but as the steepness was mitigated and the precipices were smoothed by cutting down the banks and spreading their soil into a slope, a bank occurred here very tall and big. The man went incautiously to work, it rushed down upon him before he was aware, and buried him as he was found, in 12 ft. depth of earth.

This was the line of the Castle towards the water, about . . yards in all, here and within the western wall of the coal-yard, I suppose ranged the west front of the castle. This is all gone, and immemorially gone too, but opposite to the present gate to the parsonage and near the village well, are, and have been some remains, a beam of oak black with age and chisselled for inserting the ends of joists into it, was found in the gutter west of the wall five or six years ago, and is now applied to keep up the failing road immediately above. About the same time and in the same gutter, the wall of the castle was discovered in its foundations. It was first dug up opposite to the well. It then came up to a point of the bank in which I shall soon shew some remains of the more southerly of the two northern walls. It went on to a wall, that I shall equally notice soon, as the more northerly of the two. It was thus traced for four or five yards, and in the interval between the two walls was laid open an arch of stone upon which the wall was supported, and by which a spring of water was discharged from the castle into the lane.

The well itself was the original *well* of the Castle. But it was not exactly where it now is : a yard or two from it appears an arch, in the wall of an adjoining house, which has been closed up, and is almost buried in the growing soil.

This was a well in which a boy was drowned about 70 years ago ; it was therefore walled up across the mouth, and another made, in a more open and less dangerous form near it.

A few yards to the right or south of this well no doubt was the *Gateway* into the court of the castle. It was not at the well, because a fragment of the wall that remains there shews no signs of an arch springing from it. This it must have done if the arch of the gateway had sprung from it ; and the gateway probably stood about the middle of the court, on the site of the house belonging to the coalyard, and opposite to the present spring into the area of the Castle.

The fragment of wall mentioned above, spans across the arch of the well above the mouth, and forms more than half the side of a small house, as the well goes directly under the house. The eastern half of this wall has been thrown down, and then repaired with its own materials. The top has been also repaired in the same manner, and had a window inserted in it. But the western end witnesses sufficiently its antiquity by its aspect. It rises up like some of the walls within the Parsonage, contracting in its breadth as it ascends, but it appears again in its foundation at the bank before it, and about . . . yards to the west of it. This therefore is the only relique of that range of rooms which formed the north side of the court, as about 10 or 11 feet north of it is another wall, very entire, and the back wall of these rooms.

The small house which has the well under it is thrust in between this wall and that, representing therefore the rooms that were formerly enclosed between them, and shows them to have been only 10 or 11 feet in width. The well projecting with its broad and arched back into the rooms, though it was probably covered then, as it now is, with the raised level of floor, shows us the designation of the rooms.

The *Kitchen* of the castle occupied the western half of this north side, with its scullery at the western end of it, and the northerly or back wall now shows itself very tall, about . . feet in height, very long about . . feet in extent, and very ragged as it has been skinned of its facing stones for the construction of houses in the village. It extends to the very limit of the castle ground easterly. failing a little in its upper parts towards the end, but still preserving its original length in its foundations,

There the end of it coincides with another wall that appears by the Dungeon that constitutes the easterly side of the Dungeon itself.....a little to the right of the door in the warehouse, and ran on within these six or seven years....feet thick and the slighter because of the fall in the ground there, to meet the high wall above, and to be the back wall of the eastern range of rooms, a part of it then fell down with age; and the break in it has been left unrepaired, as it opens a new road of access to the houses there under the cliff.

We have thus made the circuit of the castle-court, we have noted the disposition of the parts, where we had any notes to direct us; we have also pointed out the position of two of the towers. Let us now note the position of two more. *One* of course was over the gate of entrance. Another was over an opposite gate on the east; I suppose for a way into what was then the *Garden* of the castle; a kitchen garden I believe was all that was then aimed at. And this lay, I doubt not, upon the ground running parallel on the east, which has been equally with the castle area levelled apparently by the hand of art; and which, however, had no part of the castle upon it, as the termination of walls shows, and as the non-appearance of any stones above or under the ground confirms.

We have now four of the seven towers accounted for. But where shall we find the other three? We must find them in a *second court* of which tradition has lost nearly all remembrance. It only said some years ago...that the castle extended to the north of the road, yet the evidence is too clear to be doubted, and yet it is merely to be collected from that faint whisper of expiring tradition, and from some...minute and vanishing. The more northerly of the two walls above, that which runs so tall and so long towards the east, now comes out to the west beyond the wall and the well-house; and was cut through about four or five years ago on the west side of the house, to make a way from the house to the long and narrow garden adjoining; with this breach in its course it goes on about a couple of yards more to the west; and then ends in a ragged form, that shows it by the freshness of the appearance to have been recently destroyed there, and it appears to have come forward to the same bank on

which the foundations of the parallel wall still appear and had its own foundations there dug up about forty years ago. Both terminated at this bank as I have already shewn and so united with the western line of the castle-wall that has been discovered at this point coinciding with the end of the building in the coal-yard, and the assigned place of the gateway. But from this termination of the northerly wall, another wall must have commenced carrying on the course of the western wall up to the bank, of the road from the church to the mill and pointing through the porched house there a little to the east of the porch.

Parallel with this have been found in the long and narrow garden adjoining, several walls issuing from the great wall, and crossing the narrow breadth of the garden. These were evidently the foundations of a range of rooms that extended along the northern face of the great wall, as another extended along the southern and constituted one side of a higher court as the other did of a lower, and as the depth of the garden below the road, about five feet, has been produced by the existence of cellars under all; so the breadth of the garden about....feet denotes the size of the rooms, not much superior in dimensions to those on the southern side.

On the road then from the church to the mill and about the porch of the porched house stood the gateway of the Higher Court; facing the greater church style, admitting the road from it at this front gate, and dismissing it to the mill at a back gate, where the great hall and long garden equally terminate to the west. How far this higher court went to the north I cannot ascertain, no remains are known to be discovered behind the porched house or behind its accompanying house on the west, but it extended some way no doubt; it formed a great quadrangle or regular court, and its memory has been nearly lost, I suppose, to the present generation, from its materials having been easily begged of the lords by their nominees, the Rectors, for the enlargement of the parsonage house, for the inclosure of its Courts, and for the reconstruction of its offices. Two of the three towers we fixed of course upon the two gateways of this higher Court, the third was fixed I believe upon another gateway

that opened to the north, and towards some appendages to the Castle which I shall notice hereafter. The orchard, the farmyard and the field retained for its own use, and there being no space for these appendages upon the south, because of the tideway, on the east because of the precipice, or on the west because of the parsonage. they must necessarily have been on the north. The higher court was of much later addition, the original castle consisting of one court, this was the lower, it was originally all, this is evident from the difference of architecture in the remains of both ; those of the lower are universally constructed with clay mortar, while those of the higher are cemented with lime, both are especially apparent in all the joints of the stones, and in that part of the long wall the foundation of which has been dug up lately at the western end. Pieces of lime have been found so solid and so massy, that some persons wildly supposed the lime to have petrified in the ground from age. These pieces assuredly that had been poured boiling hot upon the foundations had formed itself into irregular cakes in the interstices between the stones, and then from its close adherence to the stones, perhaps from opposition between the heat of these and the cold of those, and certainly from the exclusion of the external air afterwards had consolidated into some similarity of nature with the stones themselves. The mode also of construction in the two courts is very different to the base court, the stones are huge, unshapen and ill compacted, gaping rudely in the joints, and presenting a clumsy and coarse appearance to the eye, but in the higher court the long wall exhibits to us a piece of masonry that would do credit to a modern builder, the stones being shaped into smooth surfaces with a fair and modern appearance, and both appear to be the stones of a quarry upon the glebe which only 10 years ago exhibited all the aspect of a deep and ancient quarry showing a high face of rock, being covered with trees, having formerly been famous as a harbour for snakes, and being found on examination to have been perfectly worked out, they are certainly the stones of the glebe from their hue and their hardness. The ground of the base court has been found to be remarkably deep in soil, hundreds of loads of earth have been carried away from it for manuring the adjoining fields. But the ground of the higher court is very shallow, this is attributable

to two causes co-operating, the lower court was constructed with clay floors generally and with side walls of clay entirely I presume, these in the demolition of the whole, have mingled with the soil and have deepened it, but the other was constructed obviously in a more modern style of refinement with side walls of stone and boarded floors, and these have left the ground in its original shallowness of soil; the other cause is this, the plain of the Castle-hill was originally uneven and precipitous, and required much labour of levelling. This threw vast quantities of earth into particular places, and I have given a remarkable instance of a man caught by a falling bank and buried 12 feet deep in earth; but the ground above was of a different nature, required but little levelling, and therefore received little accumulation of earth in places, it remained therefore in its original state."

"I was some years ago informed by an old man, who from his constant residence in the village, and from his great age, was the faithful chronicle of the parish, that a giant once lived in this Castle: an incident of romance which seems to carry us up to some of the remotest periods of our history. But he added that another giant lived contemporaneously with him at Tremonk, an estate in the parish, that two giants so near being sure to quarrel for exclusive dominion and sole sovereignty, the giant of Lanyhorne fought with the giant of Tremonk, and that as giants scorn to contend with the ordinary weapons of a man they hurled stones at each other."

(Whitaker considers this tradition to be founded on a pitched battle between two rival barons. Tremonk he considers means the King's House and its tenant was independent of the Lord of Lanyhorne and quarrels would thus arise.)

"Tradition says there was a city at Tremonk formerly, and that a king resided in it, that this city reached from Tremonk to Reskivers near Tregoney, and that it was denominated the City of Reskivers.

Tremonk house is remembered about 40 years ago to have had a narrow approach to it with a wall on each side, and a room for a porter's lodge above in the style of a castellated



mansion, to have then had a gate with a wicket and a small court before the whole. . . . all the buildings are said to have constituted a small village. Many foundations of walls also have been discovered about the present house which is a recent structure and stands below the site of the old house.

Three or four years ago on a plat of ground which was covered with briars and brambles the soil was found to be black earth for four or five feet deep, and a regular pavement the area of a court was discovered beneath; about thirty years ago were also found a quantity of cinders in the ground at three different places and fragments of iron among them."



1771

1771

**THE BASAL WRECKS AND REMNANTS OF EXTINCT VOLCANOES,  
ALONG THE SOUTH-WEST COAST OF CORNWALL.**

BY THOMAS CLARK.

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**BRIEF HISTORICAL SUMMARY.**

The study of igneous action in Cornwall has centralized itself at its most fascinating development, at the Lizard, but the manner of its origin and ultimate results will, I think, be better answered by those who study its minor developments further afield before attacking it at its culmination, which, in my opinion, should be dealt with last and not first.

Fifty years ago Sir Henry De la Beche marked as greenstone some of the headlands on the South-west coast of Cornwall. These generalizations remained unchallenged till about ten years ago, when Professor Bonney, having procured and examined specimens of the Lizard rocks, pronounced them Archæan, with more recent intrusions of volcanic matter, such as Serpentine, &c.\*

After the publication of Professor Bonney's paper, I spent several days with Mr. J. H. Collins in examining the rocks about the Lizard and Porthalla, a locality I have had occasion to visit many times since. The outcome of our visit was a paper by Mr. Collins,† in which he endeavoured to show that the rock formation of the Lizard district was principally due to metamorphosed sedimentary rocks. Now, though the visit was made conjointly, the paper was not conjointly written, for I differed so far from the conclusions of Mr. Collins that I at once prepared a paper for this Institution, in which I gave my opinions for believing they were of volcanic origin, and not altered sedimentary rocks, and this view I endeavoured to sustain by rock specimens and microscopical sections of the rocks themselves. And this paper was read at the Monthly Meeting on April 18th, 1887.

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\* Quat. Jour. Geo., 1877 and 1884.

† Quat. Jour. Geo. Soc., Aug., 1884.

Since 1884 the rocks of the Lizard district have received the particular attention of our greatest geologists and petrologists, each introducing his own theory as to their development, which has complicated, rather than simplified matters, hence the problem, so far as collective opinion goes, is still unsolved. Mr. J. J. H. Teale's admission at the end of a paper, shewing great research, read before the Geological Society of London, that he was not prepared with an answer as to their true origin, is what most workers in this field have had likewise to admit.

From amongst the various sections of Cornish rocks which I exhibited at a *conversazione* given by this Institution in honour of the visit of the Geologists' Association in August, 1887, I shortly after selected and sent sixty slides to Professor Judd, F.R.S., for inspection. He was particularly struck with those from Coverack, his opinion being that they corresponded with certain Tertiary Gabbros, which are of volcanic origin, in the Western Isles of Scotland.\*

Now mark the change! Mr. Howard Fox, a petrologist of no mean order, on hearing Professor Judd's opinion respecting our Cornish rocks, informed me he had made Mr. Teale acquainted with that opinion; on the 8th of May, 1888, Mr. Teale read a paper before the Mineralogical Society,\* entitled "notes on some minerals from the Lizard," in which he stated that he had discovered that the Gabbros at Coverack bore a resemblance to those described by Professor Judd from the Western Islands of Scotland, which was undoubtedly correct, Professor Judd having seen my slides, communicated such to me in the previous December.

In the same month, May, 1888, Mr. Howard Fox read a paper before the Geological Society of London, in which he contended that the Lizard rocks were chiefly a metamorphosed mass; in which view he was supported by Mr. Teale.

There are probably other papers in various publications which I have not seen, but one of local interest is that read by Mr. E. A. Wunsch, before the members of the Royal Institution

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\* Quat. Jour. Geo. Sec. vol. 42, p. 42.

\* Mineralogical Magazine and Journal, vol. 8, p. 116, Oct., 1888.

last year, which was full of suggestions and an admission that no one man can solve the question, as it required the combined efforts of many workers under the direction of a skilful general.

As a Cornishman I am desirous that the problems of our rock formations should be solved, and am willing to devote all the time I can conveniently spare to the subject, feeling assured that it can never be solved on the carpet, but by theoretical knowledge on the one hand, with practical work in the field, the laboratory, and the use of polarized light on rock sections. This course of action I have followed for many years, and still intend to pursue.

### BLACK HEAD.

The bold headland to the east of Mevagissey Bay, known as the Black Head, is marked on the coloured Ordnance Map as greenstone, or igneous rock, but on visiting it recently I found it to be a member of the Upper Silurian, or old Red Sandstone. Immediately overlaying it is a fine clay slate, in which, about nine years ago, I found a fine fossil (*Orthoceras*) which I presented to this Society and which is preserved in its Museum. Fossils are still to be found in abundance near the Black Head in a fair state of preservation, and it is, I believe, the only place where they have as yet been discovered in this formation in West Cornwall. With these formations of sandstone and clay slate I am fully acquainted, from their extension from the Black Head on the east, to Barkles Shop, St. Agnes, on the west. From its line of strike through the parishes of Ladock, St. Erme, St. Allen and Perranzabuloe, I have obtained during the last twenty years many thousand yards of road metalling: I incidentally mention this to show that I have had a lengthened opportunity of becoming familiar with these rocks, and so could not be easily mistaken as to their character or nature.

### TOLCARN.

Tolcarn, in the parish of Gorran, situated a little to the north of Caerhayes Castle, is marked on the coloured Ordnance Map as greenstone, I specially visited this place, as I had done the Black Head, on the 22nd November, 1888, to obtain specimens and to refresh my knowledge of the geology of the district.

Good specimens of conglomerates may be obtained from the heaps of stones by the side of the road, or, from some of the projections on the face of the road, which it would be a charity to remove, for it is yet a conglomerate of unequal resistance.

If we travel about one and half miles south to the cliffs between Porthley and Porthlewey we shall find similar conglomerates of about 2,000 feet in thickness, described by Sir H. De la Beche as Trappian Conglomerates and by Mr. J. H. Collins as Siliceous Conglomerates; but the Microscope reveals undoubted evidence of their true volcanic origin.

I was not rewarded by finding a grand volcanic vent, from which may have flowed incalculable masses of volcanic tuff, but I did find conglomerates overlaying the upturned edges of the stratified rocks, but not anything overlaying the conglomerates. I am not satisfied that I have discovered all the volcanic evidence the locality affords, but believe it to be well worthy a fuller investigation, and that we may safely make Tolcarn our starting point to work out the volcanic evidences of West Cornwall.

At Tolcarn the conglomerates thin out just above the stream a little east of the mill, where they are cut through and the upturned edges of the old formation exposed. A little above the stream, by the side of the road, great quantities of the conglomerates have been removed for road metalling, and have left the slate rock bare.

#### NARE HEAD, VERRYAN.

As we travel south-west the evidence becomes clearer and more abundant. A little in from the coast line we find a neck of unbroken gabbro filling an old crater, or vent, from which may have flowed some thousands of feet of volcanic tuff, or it may possibly have been a parasitic vent of a main crater situated far beyond the Gull Rock and the Whelps. The lowest layer of the conglomerate is composed of fragments of various rocks through which the vented matter must have passed in its upward course, such as clay, calcareous slates, quartzites, felspar and olivine.

The next layer is very much in excess of the former and is an extensive mass of conglomerate, principally composed of broken gabbro or felspathic tuff. To the north of the neck we have what appears from surface view, to be a dyke of matter very far advanced into serpentine, with but few traces of the original mineral forms distinguishable. Between the serpentine and the neck of gabbro stands an almost unaltered portion of silurian slate, which is an evidence that contact metamorphism has had but little effect there. If we go a little to the north of the serpentine, on the old stratified rocks we find ourselves immediately confronted with immense blocks of quartz and quartzites many tons in weight, and so numerous that for some distance the land is not worth cultivation; these quartz rocks were probably the product of the first hot water which issued from the heated and already expanded and fissured region. This water or fluid containing a high per-centage of silica when it arrived at a cooler and more tranquil portion of the fissures, crystallized into the form in which we find it. Since this crystallization took place there has been great denudation of the surrounding rocks, and now the quartz blocks stand forth in bold relief or have fallen and rolled over in great profusion along the hillside.\*

Blocks of quartzites are also abundant yet retaining visible bands or lines of its former stratification, and also containing some perfect casts of Lower Silurian fossils.

A view of the cliffs from the point marked on the map, Penarin Point, will be found to be fissured and filled with quartz, and will give the concluding evidence of the nature and character of this very interesting region. There is no mining district in Cornwall where quartz is so abundant, and it is only approached by the gold mining regions of California. I should not consider it a very forlorn hope to seek for gold in the drifts of these quartz rocks.

I now propose to refer to the land south of the Helford River, or that portion of Cornwall known in many a geological debate as the Meneage Peninsula. This has long been a hot bed

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\* See Ordnance Survey Map, County of Cornwall (Western Division,) Sheet LXV, Nos., 1495, 1499, 1500.



of controversy and will I think continue to be so, especially by those who were unfortunate enough to hang up their theory on the wrong peg. I will commence with the Western Nare Head situated to the south of Falmouth; this portion of Cornwall, as well as the eastern, has its Nare Head, Penair Farm, and its Carn, and on the western Penair farm commences the grand range of quartz and quartzites which form a portion of a circle around the celebrated Hornblendic Serpentine and Gabbro region, the Lizard, a name familiar in almost every civilized country. It is accessible from almost every point, and it is visited by hundreds of people from various parts of the world every summer, therefore any statement I make respecting its geological formation must of necessity be a very careful delineation, and less speculative than the reports often given by writers, especially too, as the district has been visited regularly for the last fifty years by the most eminent geologists.

I purpose reversing the mode of investigation generally adopted by others, and shall begin with the vein or fissure quartz, such as is found scattered through the strata in which the volcanic energy first found vent; and then treat with the tufa or fragments of the various rocks through which the energetic force found its way, and carried all that was removable with it.

The vein quartz and quartzites are scattered in great profusion over a belt of land averaging about one mile in width, and extending from the mouth of the Helford River to a little to the south of Looe Bar; quartzites appear to be in the minority, and I believe I am the only person who has been fortunate enough to find a recognizable fossil cast in them. For many summers past I have visited the locality, and have from time to time made enquiries of the stone breakers, and also of Mr. Shephard, the surveyor, but without hearing of any other discovery of casts of fossils. However, on a very recent visit to Porthalla, in company with Mr. Crowther, I discovered some boulders of quartzite at Fletching's Cove containing some good casts; not being able to detach any portion of the stone, I succeeded in obtaining a good pencil rubbing of them.

The cliffs from the Nare point at the mouth of the Helford River to Porthalla, were visited under very favorable circum-

stances, viz., a gentle overland wind, and at very low water, so there is not anything speculative put in to fill up in the section of these rocks which I have drawn.

The Looe and Swanpool bars are built up with quartz and quartzite pebbles from the fissures referred to. The tufa is very abundant at the western Nare, Belurian Cove and Asparagus Island. In some places it undoubtedly obscures portions of the vein quartz and the rocks, that contain them.

Respecting my research on the rocks of the Lizard, and the views I have for years held concerning their volcanic origin, I will simply say that the probable delay in the discovery of their true origin was caused by the non-recognition of the rapidity—geologically speaking—of the change a greyish olivine makes when coming into contact with certain lime felspars, which are very abundant in the Lizard district.

The result of the change referred to is a transformation of these two minerals into one, known as Anthophyllite, which is a secondary hornblende; geologists, until very recently, were not prepared to receive such a change as genuine, but a view of my slides from Coverack and St. Keverne must, I think, convince the most sceptical of the fact.

I have found similar changes in a coarse greenstone at St. Mewan, near St. Austell, and in the felspathic tuff at the Nare head, Veryan.

The brownish and yellowish olivine when found associated with enstatite, or bronzite under favourable conditions, slowly changes into serpentine, but the tufa of the Western Nare is of a much earlier date, and is undoubtedly Silurian.

In a slide of a somewhat modern gabbro from Coverack, on the table, there is to be seen the end of an olivine crystal in contact with augite; at that point there is no perceptible change, but at the other side where it is in contact with labradorite, (soda-lime felspar) the change is far advanced, and beautiful zones and needles of anthophyllite have been formed. To many this would be sufficient proof of the true volcanic origin of the rock from which this section was taken; olivine being a well known volcanic production. A great portion of the so-called hornblendic schist of the Lizard is undoubtedly derived from the passage of olivine into anthophyllite.

There has not been any evidence to show whether the St. Keverne gabbros were ejected into air or water, but there is to be found on Crowsa Downs, resting on these gabbros, a great accumulation of quartz and quartzite pebbles, corresponding with those at Swanpool and Looe Bars, but there has not yet been discovered any organic remains, which would show the age of their deposition.

#### THE WOLF ROCK.

This rock, situated about 9 miles south-west of the Land's End, and about 22 miles west of the Lizard point, is surrounded with from 30 to 40 (engineer's measurement) fathoms of water, is about 175 feet in length, and about 150 feet in width, and rises about 17 feet above low water; during the spring tides it is covered with water to the depth of about 2 feet. On it is erected a lighthouse, which has proved a great blessing to mariners. The rocks excavated for laying the foundations of the lighthouse have thrown a great deal of light on the geology of the south-west coast of Cornwall, if not also on the tradition of the submerged land of the vicinity; but it is their composition and relative age that principally interest the geologist.

A description of the Wolf rock by Mr. Allport will, I think, be found interesting. He writes :—"Examined by the eye, or a small pocket lens, the rock is seen to consist of a yellowish grey compact base in which crystals of clear glassy felspar are embedded, they exhibit no striæ, but their fracture is sharp and splintery." After a long microscopic description he arrives at the conclusion which is especially worthy of remark, that "this grey dust occurs in precisely the same way in the nepheline of the basaltic phonolite of Tertiary age, and from widely separated localities." The Wolf Rock may therefore be considered contemporaneous with the Coverack gabbros. This is very conclusive evidence that south-west Cornwall contains the Basal wrecks and remnants of extinct volcanoes, and when, further, Messrs. Allport and Judd, class these latter as Tertiary ejectments, they confirm the views I have held for many years on them.

It is interesting tracing their connection with other well-known basaltic wrecks and elevations of land along the coast of England and Wales. The Isle of Man, where the Pleistocene

formation is raised in some places about 500 feet above the sea and pierced with basaltic dykes. The famous upheaval of the Snowdon range with its basaltic columns and recent shells in deposits 1,350 feet above the sea. The coalfield of South Wales with its north and south faults and fissures, and some apparently modern dykes of basalt; and, again, the recently discovered basaltic columns a little west of Tavistock, in Devon, from thence to Padstow, North Cornwall—between the two places basaltic dykes and sheets being very abundant; and lastly the well-known micaceous trap that extends from near Newquay on the north to the Lizard on the south. The whole of this chain of evidence will, I think, prove the connection to be complete from the Western Islands of Scotland to the Wolf Rock off the south-west coast of Cornwall. The volcanic forces which had during the long Mesozoic period deserted our part of the earth's surface, appear to have returned to it in full vigour in the Tertiary epoch.

“In the newer Paleozoic periods, the direction of the great volcanic band which traversed our islands appears to have been from north-east to south-west; but in Tertiary times a new set of fissures were opened, running from north to south, [which intersected those of earlier date,] and the intensity of its activity gradually increased till it attained its maximum in the Miocene period, when a great chain of volcanic mountains stretched north and south along the line of the inner Hebrides, the north-east of Ireland and the sea which separates Great Britain from Ireland, as far as the British Islands are concerned.”\*

It there appears to have ceased, or there is apparently no further notice taken of these grand phenomena, but I claim their extension southward to the Lizard and the Wolf rock, and believe that I can produce reasonable evidence to confirm this claim by a great number of slides of the south-western rocks, and many hand specimens, from which many of the microscopic sections were taken; the map, too, shews the non-conformity and disparity of these rocks, when compared with the older rocks, consisting of clay slate, fragmentary conglomerate, and limestone, the latter being replete with remnants of marine organisms, dipping at an angle of  $48^{\circ}$  S.S.E., beneath the newer

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\* Judd, volcanoes, p. 278.

rocks, which consist of coarse grained dyke gabbro, and banded gabbro, coarse and fine grained, and serpentine bands in the various stages of change from perfect olivine grains, enstatite and bronzite, into a fine workable serpentine. Traces of the original crystalline structure are still discernable, these rocks being much contorted at their junction with the lower group, their average dip being about  $44^{\circ}$  N. A much more complete and satisfactory non-conformity of matter, strike, and dip could not be well conceived by the most fertile imagination. Further evidence is adduced too, by the abundance of the north and south faults or fissures, which are found crossing the rock west of a line drawn from Abergele, in North Wales, to Exeter, in the south of England. These cross-courses or fissures may be attributed to the Tertiary convulsions which passed along in this direction, and in some localities they were probably the vents through which passed matter that formed huge mountains like Etna and Vesuvius of to-day, but have shared a similar fate to the denuded mountains of the western islands of Scotland.

In some places the fissures show great displacement, one which passes from Perranporth on the north, to near Falmouth on the south, was reported by the miners at Wheal Leisure, Perranporth, to show a displacement of 60 fathoms.

This fissure is to be seen at an advantage about mid-way in the eastern cliffs at Perranporth, its course being a little west of north and east of south. Somewhat similar fissures between Truro and Redruth are very abundant, as if this were about the central line of convulsions, or at least one of them, that disturbed the rocks which had had long repose; some of these faults or fissures are fathoms in breadth, and are principally filled with quartz, and are in some places metalliferous. This disturbance, however unpleasant to the marine creatures which gained their subsistence there, in course of time proved beneficial to man, whose remains have been found in deposits at Carnon and Pentewan tin stream works.

Now let us take a brief review of the past within Tertiary times: what must have been then the condition of the region now called England, when Snowdon was a favourite resort of

marine life ; the St. Erth Pliocene beds at least 50 fathoms beneath their present level ; and the London basin a receptacle of the disintegrated schorlaceous granitic sands of Devon and Cornwall.

Subterranean energy has changed the face of nature, and lifted Snowdon far above the ocean wave, carrying with it the remains of marine organisms to a great height above the sea. Hayle and St. Erth have become centres of commercial and engineering activity, where genius has raised its head ; and on the disintegrated and drifted sands from Devon and Cornwall stands to-day a part of the most famous city of the world.

## THE ROMANS AT TAMAR MOUTH.

By R. N. WORTH, F.G.S., Cor. Member.

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The paucity and scattered character of traces of the Romans in Devon and Cornwall, west of Exeter, gives special interest to new discoveries in this direction. This must be my apology for endeavouring to bring into one focus all that seems to be known of the presence of the conquerors of the world at the mouth of the Tamar, on the shores of what we now call Plymouth Sound.

Until the present year I do not think we have had any evidence west of Exeter of more than casual or individual Roman occupation, or rather presence. The forgery attributed to Richard of Cirencester is primarily responsible for the baseless fiction of the existence of Roman stations in South Devon and Cornwall; nor do I think that in this latter county, at any rate, we have proof of the existence of Roman roads, the St. Hilary stone notwithstanding.\* Still, the presence of that stone; the discovery of hoards of coins, as at Helford Haven and near Gorran and at Pennance; and the not unfrequent occurrence elsewhere of casual examples of Roman money; show clearly that the Romans not only visited the county, but that there was some amount of occupation by them, probably in the form of trading posts. And I think it very likely that the vestiges of their intercourse and presence would be far more numerous than they are, had more attention been paid to bringing them to light, and preserving them.

I am the more strengthened in this belief by my own experience in the Plymouth district, where, within the past few years, discovery has followed discovery, until I am able to lay before the Institution a body of evidence that I myself was probably the last to suspect. Indeed, before the present year

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\* And, I may add, the Tintagel stone, discovered since this paper was read, by the Rev. W. Iago. There were British trackways, which the Romans who came west naturally followed.

the only known traces of the Romans about "Tamar Mouth" consisted of the casual occurrence of a few coins, and of a few fragments of pottery. We learnt far more in 1888 than the most sanguine local antiquary ever dreamt of.

The coins have been found in several localities, but chiefly by the ancient sea margin. The site of the Millbay Railway Terminus yielded several, and others have been found on the reclaimed shores of what was once an inner reach of Millbay, known as Surpool. Others have been found on the Hoe, and at Cattedown; and several at and near the isthmus which joins Mount Batten to the mainland of Staddon Heights. Prince Rock, further up the Laira, yielded many, and some have been found at Plympton.

Then on the higher ground away from the water we have Roman coins occurring at the Devonport Park; Mannamead—where five were dug up in one spadeful of earth; possibly on the line of an old trackway, at Torr, in the same neighbourhood; and—the most recent of all—in loose earth in a space enclosed by the foundation walls of a house in Prospect Street, Plymouth.

I give as complete a list as is in my power of the particulars of these various finds, the star indicating those that are in my own possession. The only coins of the series that had any association with other antiquities were those from the Batten district. At Mount Batten itself British gold and silver coins have been found; on the Batten isthmus there are remains of a kitchen midden; and on the slopes of Staddon, immediately above, a Keltic cemetery was discovered when Fort Stamford was built. Though such association existed, there was however no connection between the Roman relics and the other antiquities—nothing was indicated beyond successive occupation or presence.

Alexander Severus	Mount Batten.
„	Cattedown.
Antoninus Pius	Cattedown.
„	Mount Batten.
*Carus (second brass)	Millbay.
O. Diademed head to right	IMP CARVS P F AVG.
R. Figure of Hope	SPES PVBLICA.



*Constantine (second)	Mannamead.
O. Laureated head to right	CONSTANTINVS.....
R. Two Roman soldiers with standards.	Legend imperfect.
*Constantine (second)	Prospect Street.
O. Head to right	CONSTANT.....
R. Detrited and patinated.	
Constantine	Prince Rock.
Constans (third)	Mount Batten.
Domitian	Battery Hill, Stonehouse.
"	Mount Batten.
Faustina	Plymouth Hoe.
Hadrian (2 examples)	Cattedown.
Magnentius (second)	Millbay.
*Nero (first)	Mount Batten.
O. Diademed head to right.	Patinated.
R. Female figure	"
*Nero (?) first	Prospect Street.
O. Head to right	Imperfect.
R. Detrited.	
*Probus (second)	Devonport Park.
O. Diademed head to right, IMP O PROBUS P F AVG.	
R. Figure of Peace, IIII in exergue, PAX AVG.	
Trajan Decius	Mount Batten.
Vespasian	Mount Batten.
*Victorinus (third).	Staddon Heights.
O. Head to right	IMP O VICTORINVS P F AVG.
R. Figure of Peace.	PAX AVG.
<i>Unknown and undetermined.</i>	
First brass, head to right	Prospect Street.
*Second, female head to right	"
Greek colonial character.	
*Third, wholly detrited	"
*Second, head to right	Plympton.
*Third, undecipherable.	"
Several, no particulars	Millbay.
"    "	Prince Rock.

But a discovery was made in April last of a much more important nature. A characteristic Roman bronze, the figure of

the god Mercury, was dug up in a garden overlooking Hooe Lake, a land-locked inlet from Cattewater, in the vicinity of Batten. It is small,  $2\frac{1}{2}$  inches in height,  $1\frac{1}{2}$  in extreme breadth, and weighs only  $\frac{1}{4}$  of an ounce. With the exception of the right foot it is perfect. This is just one of the little gods that Roman merchants carried with them, and there can be no reasonable doubt it is the relic of the presence of a Roman trader, who, for aught we know, may have had his post at this peculiarly convenient spot.

Still more important is the last matter to which I have to refer; for if my hypothesis is correct, we have in a discovery at Stonehouse, in 1882, evidence that there must have been a Roman settlement of very definite character on "Tamara ostia." Though the discovery was made in 1882, the men who made it had reasons for keeping their own counsel; and the whole of the facts would have been lost to archæology had not Mr. Stenteford of Hooe perseveringly followed up a clue, and put me in possession of particulars since supplemented by personal investigation.

Without going into details, which may be found elsewhere,\* I may state that in 1882 there was found in Newport Street, Stonehouse, on the edge of Stonehouse Creek, and extending back from the ancient beach to a low limestone cliff (once the water boundary) a few feet only above tide level, an area which had been paved with pebbles; and in one corner of which there was a group of little tombs—4-ft. to 4-ft. 6-in. in length, 2-ft. to 2-ft. 6-in. in height, and about  $2\frac{1}{2}$ -ft. wide. The sides and ends were of thin tile bricks greatly decayed, and they were covered by slate-slabs. They ran *north and south*.

The whole area was buried under a mound of ashes, bones, and refuse matter, the surface of which had been levelled, covered with earth, and planted as a shrubbery. Some pottery, &c., seemed to date the refuse heap about the early part of the 16th century; but there was nothing found by which to date the tombs.

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\* Trans. Devon Assoc. 1888, pp. 134-138.

However, within certain limits they seem to date themselves. They were not big enough for interment by inhumation—indeed, they were merely built kist-vaens, and built too as Romans often built them. Again, the fact that they lay north and south at once suggests a non-Christian, if not a pre-Christian, origin. The probability that they are Roman almost amounts then to certainty; and it seems quite likely that this spot was an *ustrinum*, a place in which the Romans both burnt and buried their dead.

If so, we can understand further why in Saxon times Stonehouse had such an important building as its name indicates. It must have been structurally far in advance of its neighbouring manors; and the existence of remains of a Roman building would supply the needed explanation.

## GODOLPHIN AND THE GODOLPHINS.

By H. MICHELL WHITLEY, F.G.S., Hon. Sec.

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Assembled together as we are to day beneath the roof-tree, of one of the Historic Homes of Cornwall which has been the birth-place of some of the most famous Cornishmen ; it will be interesting to give a short account of the family of Godolphin, and briefly to point out the numerous points of interest in their old mansion.

With regard to the family, itself, their early history is lost in obscurity, and Col. Vivian (to whose genealogical labours Cornwall owes so much) commences his pedigree with John Lord of Godolgan, who lived, probably, about the time of Henry III. or Edward I. In time the property devolved on an only daughter, Eleanor, who married John Rinsey of Quethiock, who taking the name with the estates moved to Godolphin about the close of the 14th century.

Other authorities state that in the reign of Edward III. Godolgan belonged to the family of Lambourne, whose heiress married Arundell of Lanherne. Whilst Hals states that Arundel sold Godolphin to Stephens in the reign of Henry VI., whose daughter married John Knava, who was sheriff of Cornwall in 1504, and had the name of Godolphin conferred on him by the King, who took a dislike to his ill-omened name.

However, as this may be, here the Godolphins lived for generations, intermarrying with good old Cornish families, and producing a stock of famous and valiant men.

Carew tells us that the name of Godolgan (which probably means Dolgans Down) became softened into Godolphin, and it is probable that the old residence of the ancient family was, like Carn Brea, for security and defence, fixed on the summit of Godolphin Hill, which was, probably, the original Dolgans Down.

William of Worcester tells us the building was destroyed when he visited Cornwall in 1478, and Leland, about 60 years

after, says that Carn Godolcan is on the "top of a Hille wher is a Diche, and there was a pile and principal Habitation of the Godolcans. The Diche yet apperith, and many stones of late time hath been fetchid thens."

The older portion of the present house appears to have been built early in the reign of Henry VIII., as it is shewn in a chart of that date now in the British Museum (Fig. 2). It was added to in Jacobean times, whilst a new front and colonade was built about the middle of the eighteenth century by the second Earl of Godolphin. The special features of the architecture and design of the mansion will be alluded to further on.

It would be tedious to trace in detail the history of this noble family, and space will only allow me to dwell on some of the most noteworthy incidents connected with it.

Sir William Godolphin, who lived in the reign of Henry VIII., was a person of great note in Cornwall. He was warden and chief steward of the Stannaries, and was several times chosen Knight of the Shire for our county.

His nephew, Sir Francis, was the friend and colleague of Carew, whom he assisted in his survey of Cornwall. He was renowned for his "plentiful housekeeping" and skill in mining, employing as many as 300 persons in his tin works, which industry he also benefitted by his invention of mine-stamps. But the most noteworthy episode in his life is the part he took in the defence of Penzance when it was fired by the Spaniards in 1595.

On the 23rd of July in this year, at break of day, when a fog lifted, four galleys landed a party of Spaniards who burnt Mousehole, Paul Church, and Newlyn. The inhabitants, but meanly armed, fled before the enemy, but were met and rallied by Sir Francis on the Western Green, who at once, so Carew tells us, sent by post to Sir Francis Drake and Sir John Hawkins at Plymouth for aid and succour. This letter is still extant in the Public Record Office, and is so full of life and vigour and so vividly descriptive of the scene, that I cannot refrain from giving it in full.

At this instant four Galliassees at ancker before Mousehole, their men landed, that towne fired and other houses thereabouts, no more of their fleet in sight, 50 or 60 were seen Monday evening and yesterday thwart of Falmouth; now consider what is to be done for your own safety, and our defence. Written on ye greene beyond Penzance this Wensday about one of ye clock ye 23rd of July 95.

Yours

FRAS. GODOLPHIN,  
THOS. CHIVERTON.

There is assemble about 200 naked men. I attend the coming of more and so to make hed towards the enemy.

Addressed

To the right worshipful Sir Francis Drake and Sir John Hawkins Knights generall of her Majesty's forces now at Plymouth.

With all haste post  
Haste for life

From post to post by the ordinary post for her Majesty's special service.

FRAS. GODOLPHIN.

But the Spaniards landing a further force Sir Francis was obliged to retreat, and abandon Penzance as well, to be fired, luckily without much loss, there being "onely a constable unhorsed without any harme saving the shew on his doublet of the bullets sliding by his back." On the Eastern Green, however, the Cornish rallied and eventually the Spaniards withdrew.

From an examination of four Englishmen captured by the Spaniards and landed in Mount's Bay, we learn that after the Spaniards had burned Penzance and other villages, they had mass the next day on the Western Hill, by a friar, where they vowed to build a friary when they had conquered England. It is needless to say that no ruins of this friary are known to exist.

The most noteworthy of the succeeding Godolphins, is of course, Sydney, created first Earl of Godolphin, The Lord High Treasurer, and great Minister of Queen Anne; and Margaret, his wife, whose praise is sounded by Evelyn, and who lies buried under the altar-stone of Breage Church, but whose lives I have not space to touch on. The family estates devolving through the female branch to the Osborne family now The Dukes of Leeds.

And now to revert for a short time to the interesting old home in which we stand, and which has seen so many famous men within its walls. As I have previously stated it is distinctly of

two epochs. The original house of the 15th century, and the 17th century portion with the colonade added afterwards.

The ancient portion of the house lies at the back, and the junction between the 15th and 17th century work can be well seen in the eastern wall from the garden.

The earliest drawing known of the house is that in the chart of Henry VIIIth's time, previously alluded to, which shows it as consisting of two battlemented towers with a house between, and the farm buildings adjacent. But valuable as this chart is, it would be unsafe to trust to it in the details of the arrangement of the building.

A later drawing (of which I give a copy, Fig. 3), was copied by Dr. Borlase from the walls of Pengersick Castle, and shows the old house built in the usual Tudor style with wings and a battlemented wall and gateway, across the enclosed court.

This, I am inclined to believe, is a view of the house looking north, the old house facing south and not north as the later one does.

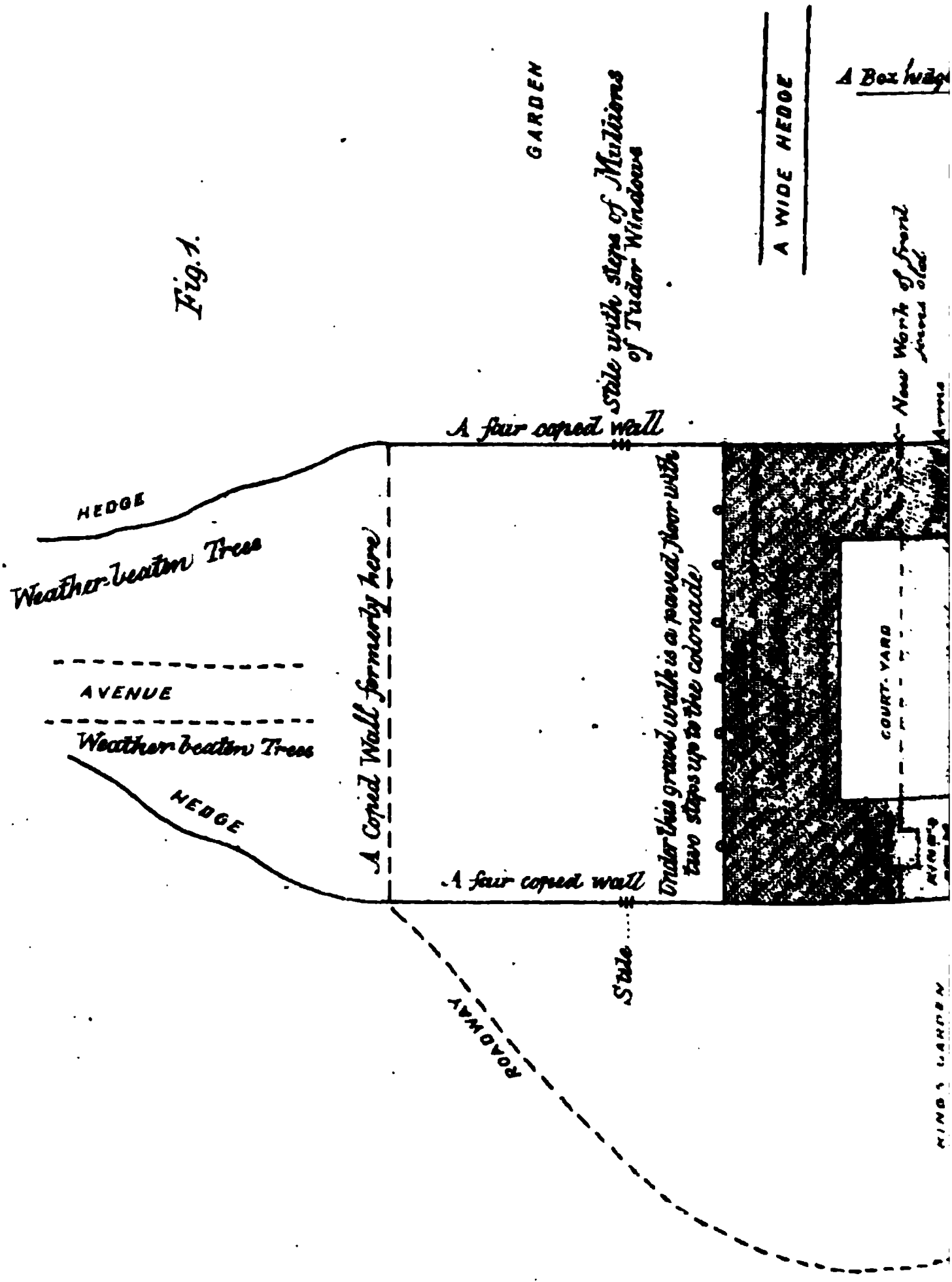
The buttressed battlemented wall which now encloses the courtyard is the south wall of the main body of the building, the great windows still remaining in it, and the rooms (which were pulled down when the additions were made) extending over the courtyard as far north as the junction between the old and new work previously mentioned. In confirmation of this view, I would point out that there still exists a tradition that a corridor ran along the south side of this wall, evidently referring to these buildings, and the same tradition states that a courtyard existed south of this wall, bounded towards the south by a battlemented wall and gateway, as represented in the drawing at Pengersick, which also shows the archway in the present battlemented wall (the main entrance into the great Hall), the windows and buttresses.

The great Hall then, I think we may assume, stretched across this courtyard, and at its eastern end in the present building is a smaller Hall, a fine old room, with oak ceiling carved with bosses of foliage, and adorned with a carved oaken screen around and above the fireplace—a room which bears





# Sketch Plan of Cadolphin.







testimony to the loving care bestowed on it by Mr. Rosewarne. In this room there is a wrought-iron coat of arms of Henry VIII., which has given rise to much speculation.

South of this stretched the eastern wing of the original building, which, as well as the western wing, has nearly all disappeared. An old stone trough lies in the garden, and close to this was, probably, the old kitchen, projecting from the building as shown in the Pengersick sketch.

Nothing else can be identified. But tradition says that 50 rooms once stood on the site (a number probably much exaggerated), and when they were pulled down early in the present century an immense quantity of old bedding and rotten furniture was burnt, all spoilt by decay and neglect; and this account is confirmed by C. S. Gilbert, who, in his history of Cornwall published in 1820, says, "The eastern side of the building has been taken down, and the whole is in a very ruinous state;" "the interior is in a miserably decayed state, and if neglect like the past is allowed to prevail for a few years longer the whole fabric must crumble into dust."

Gilbert also states there was formerly an old chapel here, dedicated to the Virgin, which was, probably, a part of the old buildings pulled down.

The 17th century additions made by the second Earl of Godolphin lie to the north of the buildings just described.

Under the corridor is a fine old Jacobean doorway, with the original oak door complete with its ironwork. In one of the rooms, called the Library, are some fine old Dutch tiles, showing Dolphins in every conceivable form. But the most interesting feature is that undoubtedly known as the King's Room—a fine vaulted room, with remains of ornamentation of the Jacobean period, with a granite open fireplace and a fine carved doorway. This room is said to have been built to read the despatches in which were sent every week from Exeter, and it was, probably, here that in later days the "Sherborne Mercury" lay on the table for the country gentry around to read.

South of the King's Room is a fine arched doorway leading from the courtyard into what is known as the King's Garden;

and to the north is the King's Bedroom, in which it is said Charles II. once slept, and which is said to have had five modes of egress—three by doors, one by the roof, and one by the floor.

Tradition says that before the colonade was built the courtyard on the north was open so that the building was in the form of the letter H ; the cross building being, probably, pulled down when the colonade and rooms over were built.

The colonade in front was built in the middle of the 18th century by Francis Earl of Godolphin, with granite brought from Tregonning Hill, and the story goes that the rooms over were never finished, but this does not appear to have been the case ; before the colonade is now a gravel walk, but under it is a paved floor with two steps up to the entrance.

The ground in front was formerly enclosed with a fair coped wall, the two sides of which remain, but the front wall across the Avenue was pulled down many years ago. The steps in the stile on the eastern side are apparently formed by some of the mullions from the windows of the old building.

So much for the interesting old mansion itself, but its gardens, shut in by groups of weather-beaten trees, deserve a word of notice. A wide hedge, of a width sufficient to drive a coach and four on, runs around them and through the estate. And although tradition states that it was intended for a road, it was more probable it was intended for shelter, a similar hedge existing at Killegarth, near Polperro. The two stew ponds, which were formerly full of fish until killed by the mine water, lie south-east of the house ; and between them and the kitchen are the foundations of a large building, probably a barn used for the storage of rent in kind. A box hedge which attains a height of about 20 feet, deserves mention. And Gilbert says an extensive deer-park still existed on one side at the time he wrote.

In concluding this short notice, I have to tender my thanks to Mr. Rosewarne for information most readily and courteously given as to the old house and its surroundings, and I have also to acknowledge most valuable assistance afforded by Mr. Walter H. Tregellas.

NOTES ON SOME OXIDIZED COPPER ORES FROM THE TORREON  
MINES, IN THE PROVINCE OF CHIHUAHUA, MEXICO.

By J. H. COLLINS, F.G.S.

*General remarks on gozzans.* The connexion of gozzan with copper-ores has long been well understood in Cornwall. This substance consists essentially of hydrous oxide of iron mingled with more or less of quartz or other siliceous substance, and sometimes with the oxides of copper, tin and other metals. Silver, too, is not unfrequently present, some of the Cornish gozzans having been especially rich in this metal.\*

A good gozzan, however, does not necessarily indicate a valuable lode of copper, since it may be merely the result of the oxidation of iron pyrites; on the other hand no Cornishman would be disposed to place much trust in a copper-lode unless it had a good gozzan—and if at the same time the gozzan were stained with salts of copper it would be at once recognized as indicating “a keenly bal.” Copper mining in the West of England is now, unfortunately, almost a thing of the past, but there are still men who remember the fine gozzans of Fowey Consols and Devon Great Consols, extending 30, 60, or even 90 fathoms down from the “bryle of the lode.”

*Limits of the gozzans in depth.*—In all such cases it is found that there is very little oxidized ore below the “water level of the country.” As soon as this “permanent level” is reached the ores are found to be almost exclusively sulphides, and even above this level it is usual to find masses of sulphide ore, chalcoppyrite, erubescite, or chalcocite, which are only oxidized at the surface, so that no-one who has really studied the subject doubts that originally the whole of the metallic oxides of the gozzan existed as sulphide, and that they have been oxidized either by the action of the free oxygen in the air or of that dissolved in

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\* An interesting paper on Cornish gozzans by Mr. Wm. Argall will be found in the Report of the Miners' Association of Cornwall and Devon for 1871, at p. 37.

the waters percolating downwards from the surface. Hence, when once the permanent water-level is reached, or when the lode is so solid as not to admit of air or water circulation, there is no more chance of oxidation.

*Oxidized Ores of the Rocky Mountains, &c.*—These same effects of oxidation are observed in all mining countries, as for instance in the Rocky Mountains of the United States and the Sierra Madre in Mexico. They have, too, precisely the same limitation in depth by the permanent water-level, or the density and compactness of the deposits. But in these countries, where the water-level is very deep owing to the elevation, where there is usually a very small rainfall with comparatively long periods of drought, and where the rocks are frequently very porous and permeable both to air and water, the oxidized ores are often found at very great depths—the mines being often perfectly dry to a depth of 1000 feet or even much more. As might be expected, the gozzans and oxidized outcrops in Nevada, Utah, Colorado, Arizona, New Mexico, and Old Mexico, are often highly auriferous and argentiferous, and often the precious metals are found in still greater abundance as depth is attained. In some places, too, they are extremely rich in copper, red and black oxides, green and blue carbonates, green chlorides, and variously tinted silicates. So abundant is the copper in many instances that the oxide of iron present is completely masked, and the ordinary gozzany characters disappear. In Arizona numbers of miners have been working on such oxidized ores for years—the ores being raised from the miners and smelted direct in water-jacket furnaces without any admixture of flux. The same kind of ore is worked at Beaver-head in Montana, and at Boleo in Lower California, and similar deposits have lately been found in the San Pedro Mining district in New Mexico, at an elevation of nearly 8000 feet above the sea. At this latter region the ores occur in irregular veins and pockets following the old water-channels, in limestone which is traversed by dykes of felspar porphyry. They consist of carbonates and oxides embedded in highly crystalline calcite associated with garnet, and changing to yellow sulphide in depth. Those raised up to the present and smelted average  $13\frac{1}{2}$  per cent. in copper. They are smelted at once into a matte containing about 45 per cent. of copper, and

5 to 10 dwts. of gold to the ton. These young mines are being worked on a considerable scale, the monthly output of matte from the group being over 300 tons, the product of about 1200 tons of ore. This quantity is easily treated in two small water-jacket furnaces—and as there are coal mines near by and coke is cheap, it would seem that the mines are likely to be very profitable whatever may be the price of copper.

*Situation and physical description of the Torreon Mines.*—These mines are situated in the province of Chihuahua, Old Mexico. The Mexican Central Railway, on leaving the valley of the Rio Grande at El Paso runs for over 500 miles through a succession of plains which are so slightly separated from each other by occasional gentle elevations and depressions as to seem practically one. The surface of the plain, gradually rising from a little over 3700 feet above sea level at Paso del Norte (now the city of Juarez) reaches an elevation of 5448 ft. at Gallego, 140 miles to the south, and, after several almost imperceptible undulations falls again at Lerdo in the State of Durango, which is over 500 miles south of El Paso.

The average width of this extended plain is from 10 to 15 miles, and it is for the most part bounded by mountains of fantastic form but moderate elevation on both sides. To the traveller by rail or road these mountains seem much smaller and nearer than they really are, owing to the prevailing clearness of the atmosphere. Terrazas station, 25 miles north from Chihuahua is something over 5000 feet above sea level, and here, among the hills on either side of the railway, a new mining district is being gradually opened up, which bids fair to become of considerable importance in the immediate future, both for lead and copper—the ores of both being largely enriched by the presence of notable proportions of silver.

*Stratigraphy.*—The surface of the plain is, like that of most other extensive plains, composed of detrital deposits, and the detritus is in most places very deep. In some parts it is merely loose sand and gravel, but mostly it is covered by good “buffalo” and other grasses, and affords sustenance to large herds of cattle. At Terrazas, which is situated midway between two gentle depressions occupied by the rivers Sauz and Sacramento, a well



was sunk some few years ago to a depth of 150 feet through gravels and sands. On reaching this depth a sort of "hard-pan" was broken through and the water immediately rose to within a short distance from the surface—where it now remains nearly constant at all seasons of the year, although the annual rainfall is very variable, and in some seasons no rain falls for many months together. In other places, however, nearer the hills, the detritus is very much thinner or even altogether absent, and here the strata are seen to consist of nearly horizontal beds of limestone, precisely similar to that which forms the eastern border of the plain in this neighbourhood, and which has been described as Jurassic by the Government geologists from the city of Mexico. In this limestone certain fissures have been found containing bones of the horse, deer, and ox, together with those of smaller quadrupeds and of many birds. Up to the present I believe these bones have not been reported upon by any competent palæontologist. The hills referred to rise to a height of from 600 to 1200 feet above the plain. Some are composed of the limestone already referred to but tilted up at considerable angles, apparently by intrusions of light-coloured felspar, porphyry, and felsite. Others again are composed of masses of this same porphyry. Of the up-tilted limestones the hill known as the Cerro de la Cruz is a good example, while the neighbouring Cerro de Magistral is a fine example of the larger felsitic intrusions. Both limestone and porphyry have been disturbed by subsequent intrusions of garnet-rock, which is in some places, and especially on the hill known as El Cumbre, almost stratified in appearance and inclined eastward at a high angle.

*Mode of occurrence of the Ore-deposits.*—All the hills in the neighbourhood of Terrazas station seem to be more or less permeated with metallic minerals, ores of lead, copper, and iron, all more or less argentiferous, and some very highly so, being found in each of the rocks mentioned, while occasional pockets of true silver ores of great richness have been met with from time to time. The copper-ore occurs in all the rocks, but mostly in close proximity to the garnet-rock intrusions. The porphyry is often stained with copper in various forms, and occasionally distinct ore masses occur in it, but only near the garnet, and as a rule it is not highly cupriferous. The limestone

contains copper in fissures and cavities, where it comes in contact with the garnet and occasionally elsewhere, but it is rarely rich in copper. Some very promising veins of lead-ore occur in the limestone quite away from the garnet; also some very pure and rich brown hematite. A great many mines are now being prospected in the foot hills, bounding both sides of the plain, by Mexicans, Americans, English, and even Chinese, and some of these have given tangible results of considerable promise. The most important of the lead mines as yet discovered occur in the group of concessions known as La Estrella, about 4 miles east of the railway, now owned and worked by the Kansas City Smelting Co., but the owners of several other mines have "shipped" one or more car-loads of ore to the El Paso smelter. The Victorino lying about 8 miles west of the railway, and lately worked by the Smelting Co. of Mexico, is for the present stopped, owing to the failure of that Company. The iron and barytes though good have not been worked, having here no commercial value. Copper has been prospected over a considerable area, but the only important workings are those known formerly as the Magistral de Torreon and later as the Torreon Mines and Smelter. They are situated about one mile from Terrazas Station on the east side of the railway. Here the explorations, though shallow, are of very considerable extent, about £30,000 worth of ore having been raised, smelted, and sold, from workings which are nowhere so much as 100 feet in vertical depth. It is from these mines that the specimens of ore forwarded with this paper were obtained.

*Fundo minero de Torreon.*—The "fundo minero" known as the "Magistral de Torreon" occupied an area of nearly 800 acres, extending from the Mexican Central Railway, eastward across the plain up to and including part of the first range of hills. There were originally 13 concessions each of 200 mètres square, but by subsequent purchases the area has been increased as stated.

The original discovery of mineral in this neighbourhood dates from about 10 years since—some years before the construction of the railway. At first they seemed to be of little importance, but the building of the railway altered matters very

materially, as it became possible to import coke and to smelt the ores on the spot. At first the ores were sent by rail about 20 miles to the southward where a small smelting plant had been established by independent parties, and here about 1000 tons of the ore were smelted with excellent results—thus proving the mines to be of value. As the developments increased a smelting plant consisting of two water-jacket furnaces with all necessary accessories, each capable of treating 40 tons of ore per day, was erected, houses for a considerable number of work-people were built, offices and stores were established, water-tanks constructed, &c.; and in fact the property now consists of a self-contained mining and smelting establishment, supplied with plant far in advance of its present development and output.

*Description of the Ore-deposits.*—The copper-ore seems to be especially associated with the garnet-rock intrusions, the ore either occupying fissures and cavities, or else permeating the whole mass of certain “beds” of this rock. The copper is always accompanied by calcite, and sometimes by calcareous deposits of a tufaceous nature; frequently by oxide of iron, and not seldom by considerable veins and masses of barytes. The deposits at the place known as El Promontorio vary from 3 up to 12 feet thick, and dip at a low angle directly into the hill. There are several distinct “beds” interstratified with cuprif-erous garnet-rock. This when freest from copper always contains from  $\frac{1}{4}$  up to 1 per cent, but the cupreous beds yield 5 up to 50 per cent. of smelting ore, averaging 6 to 10 per cent. of copper—partly as green carbonate lining numerous minute fissures, or as specks, spots, and patches of oxide, carbonate, or sulphide interspersed between the crystalline particles and grains,—the whole series affording a fine example of what is known as selective segregation. In selecting portions of these beds for smelting a great deal of judgment is necessary, since the brilliantly coated green fragments often contain less than 2 per cent of copper, while the red, brown, or purple masses which seem to be very largely composed of cupreous material are at times not much richer. On the other hand certain comparatively light reddish-brown masses are found to run up as high as 20 per cent. in copper. The most minute differences, of tint, of solidity, of texture, must be observed in these oxidized outcrops,

since they are the only indications to guide the selector,—on the one hand not to throw away as worthless stuff containing more than 4 per cent., and on the other hand not to retain as valuable stuff which runs below that and which would tend to reduce the smelting average below from 6 to 8 per cent.

At San Francisco and La Prieta, about half-a-mile northward from El Promontorio, the ores occur in a highly crystalline limestone breccia, which fills irregular cavities occasioned by, or at least intimately associated with, the garnet-rock and felsitic intrusions. In other places, as at the part known as San Carlos, there appears to be a distinct vein fissure occupied by a similar crystalline brecciated filling—the whole cemented together by compounds of copper and by siliceous and calcareous infiltrations of a tufaceous nature. The ores from these portions of the property, when properly selected, yield about 12 per cent. of copper, and perhaps 16 ounces of silver to the ton, while occasional masses are met with which are more than twice as rich. When properly selected and properly mixed from the different ore-deposits so as to give an ore-mixture running about 8 per cent. of copper, no flux is needed, the iron and lime present being sufficient to flux the whole mass. The smelting of this mixture yields at one operation argentiferous black-copper ("base bullion") of about 97 per cent. of copper, and from 100 to 200 ounces of silver per ton, and  $\frac{3}{4}$  of an ounce of gold; also a small quantity of argentiferous copper matte running over 60 per cent. of copper, and a black glassy slag containing  $1\frac{1}{4}$  per cent. of copper, and 45 per cent. of silica.

*Probable origin of Deposits.*—As already stated the ores consist mainly of black and red oxides, blue and green carbonates; variously tinted silicates, and yellow and gray sulphides of copper, mingled with oxide and carbonate of iron, and associated with calcite, barytes, and garnet. As appears from many partially altered specimens, and from a careful study of the deposits *in situ*, the original ores seem to have been sulphides, which have become oxidized by aeration and by the percolation of oxygenated and carbonated waters. Throughout the mines there is abundant evidence of the former action of metalliferous springs and of hydrothermal action, both carbonated and siliceous. As

all the outcrops are distinctly associated on the one hand with the garnet intrusions, and on the other with the channels of the springs and with the tufaceous and sinter-like deposits already referred to, it will probably be found that the copper has its origin in the same deep-seated locus as the erupted garnet-rock—that in fact the garnet intrusions opened the way for the outflow of the cupreous solutions, and at the same time originated the cavities for the after-reception of the existing deposits. At first the metals were present exclusively as sulphides, but the sulphides have been gradually oxidized, the oxides partly converted into carbonates—and still later, part of the carbonates have been converted into silicates, or at least, highly silicified. There may have been other operations in the cycle which I have not been able so far to detect, but those mentioned seem to me to be quite distinctly proved.

List of oxidized copper-ores from the Torreon Mines, Mexico, deposited in the Museum of the Royal Institution of Cornwall, in illustration of the foregoing paper.

No. 1. Unchanged chalcopyrite from *El Promontorio*.

No. 2. Red oxide of copper still enclosing kernels of chalcopyrite and coated with crystallized malachite, from *La Prieta*.

No. 3. Red oxide of copper enclosing kernels of grey copper-ore (chalcocite) and coated with malachite, from *El Promontorio*.

No. 4. Red oxide of copper in form of and replacing chalcopyrite, mingled with malachite and blue chrysocolla—the whole a good deal silicified, from *San Francisco*.

No. 5. Oxydized iron pyrites in garnet-rock with a little cuprite and malachite, from *El Promontorio*.

No. 6. Crystallized malachite, enclosing oxidized crystals of iron pyrites, from *San Francisco*.

No. 7. Mixture of oxides of iron and copper with garnet-rock and calcite, with a little carbonate of copper, from *El Promontorio*.

No. 8. Garnet-rock containing about  $\frac{1}{2}$  per cent. of copper, disseminated throughout, from *El Promontorio*.

No. 9. Garnet-rock containing about 4 per cent. of copper, disseminated. From *El Promontorio*.

No. 10. Highly silicified cuprite, malachite, and chesylite, from *La Prieta*.

## ON THE UNION OF THE BENEFICES OF BUDOCK AND GLUVIAS.

BY HENRY MARTYN JEFFERY, F.R.S., VICE-PRESIDENT.

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Even before 1265 the churches of these two parishes do not appear to have been served by rectors, but since that date, when their great tithes (together with those of Feock) were appropriated to Glasney College, Penryn, by its founder, Walter Bronescombe, Bishop of Exeter, the incumbents have been vicars. This appropriation is set forth in the ordinatio (or Foundation-deed) of the Canons of Glasney, March 26, 1267.

“He (the Bishop) has caused to be built in a competent manner a Collegiate Church, in honour of the holy mother of God, and of Saint Thomas, the glorious martyr, in the place called Glasney, within the parochial limits of the Church of Saint Budock in Cornwall, to which, on account of its slender revenues, he has united the Church of Saint Thomas, of Penren, likewise poorly endowed, to be henceforth dependent and attached; assigning to this Collegiate Church these revenues, and in addition all the fruits and profits of the Church of Saint Feock—the portions of the vicars serving those several churches being only excepted—for the living and support of clerks for ever ministering there.”

By the Church of Saint Thomas, of Penren, we are to understand Saint Gluvias, as it is expressly stated in the Confirmation-deed of Bishop Stapeldon, May 12, 1318. “The Provost and Chapter of the Church of Saint Thomas the Martyr, of Glasney, have held the parish churches and curacies (cures) of Saint Budock, Saint (Thomas) the Martyr, of Penryn,\* otherwise called Behed(th)lan, &c.” Behethland was another and older name for Gluvias Church, built in Behethland fields.—Lake’s History of Cornwall, vol. II., p. 80, after Norden.

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\* “Also yn the towne Penrine ys a chapel, and a quarter of a myle owt of the towne ys the paroch Chyrch.”—*Lelands’ Itinerary*. A chapel stood in the centre of the town, apparently on the site of the present market-house and town-hall. But no ambiguity is caused by this extract in interpreting the text.

That the same incumbent held the two cures of Budock and Gluvias is proved conclusively by the following instrument.

“The new taxation of the Vicarage of S. Budock and of Behed(th)lan made by Walter (Stapledon), Bishop (of Exeter).

To all &c. Walter, Bp. of Exeter Greeting &c. Dispute having arisen upon the portions of the Vicarage between the Provost and Chapter of Glasney and Robert, then Perpetual Vicar of the Churches of S. Budock and Behedlan,—Walter, Bishop of Exeter, after treating with the Provost and Chapter and the said Vicar, ordains that the said Vicar shall have and receive the mansion (manse) in which he dwells, all \*altarage of the said Churches, under which term, among other things, are comprehended tithe of þay in meadows, flax, hemp, and fish, also tithe of things being, or to be, in curtilage, &c., tithes of †garbs, together with tithes of beans, peas, vetches in fields, also wool and lambs remaining to the Provost and Chapter, who are to pay 40 shillings for the repair of books and other defects; but, thereafter, the said Robert and his successors to keep up books and ornaments, the covering (roof?) and glass of the windows in the chancel.”

Dated at Glasney, 23 August, 1315.

Mention is made of glebe lands, or rather of a § Sanctuary, attached to Gluvias Church in Bishop Bronescombe's Register, recently (1889) published by Prebendary Hingeston-Randolph.

\* Altarage (altaragium) originally denoted the offerings made upon the altar, and afterwards the profit that arises to the Priest by reason of the altar, *obventio altaris*.—Jacob's Law Dictionary.

† Tithe of hay in after times ranked as predial great tithes.

‡ Foremost among the great tithes was the garb, or sheaf of corn—Fr. Gerbe. Thus Hals writes (Gluvias)—“The rectory, or sheaf, in possession of Enys.”

§ This word commonly occurs in the Glasney Cartulary, from which most of the preceding extracts have been made. The general Sanctuary, which belonged to every church (and its precincts), afforded a refuge to those only who had been guilty of capital felonies. The farmers (of the church tithes) were prohibited in this Cartulary from “letting the land of Sanctuaries to laymen, leat they be subject to distress and lay-power.” This privilege of Sanctuaries was abolished in the reign of James I. The name has been retained in the parishes of Mawnan, Probus, and Altarnun; in others it lingers in the corrupt form of “century meadow.”



"Taxation of the vicarage of the church of S. Budock and the church of Penren attached to it.

Assigning to the vicar, in the name of vicarage, all the altarage (altalagium) of the aforesaid church and chapel attached to it, except the tithes of fish, wool, and lambs, of peas and beans growing in the field. Also he shall have the manse (mansio) in which the parsons (personæ) of the Church of Penren have been accustomed to dwell, together with the gardens (ortis) and all the Sanctuary of Bethethlan; and he shall bear all due and customary charges." Aug. 21, 1270. On the other hand, there is no record of glebe or Sanctuary attached to Budock Church, unless it is implied in the following "Provision upon the farm of S. Budock.

The farmer of the Church of S. Budock ought to pay for garb (sheaf) of his church, and for the tithes of lambs, wool, and fish, of the said parish, and the parish of Gluvias, £19 6s. 8d.; and for rent of S. Budock, 20s.; and for rent of Tregenegy, 9d.; and so at every term, 5*l.* 22*d.*" Glasney Cartulary, p. 27.

Quere: does Eglos (Church) farm, in the precincts of the church, represent the "rent of S. Budock?"

These two parishes are not mentioned in Bp. Quivil's Register (1280-1291), but in the Episcopate of Bp. De Bytton (1291-1307), Sir Robert is entered in his register as vicar of the \*United benefices of S. Budock and Behethland (i.e., S. Gluvias.)

A marked difference is seen in the deeds of appropriation of the great tithes of the parishes of Budock, Gluvias, and Minster (Manaccan), from the instruments in which lay or clerical owners of manors conveyed those tithes from Mylor, Gorran, and nine other parishes to the same College of Glasney. The Bishops of Exeter were the lords of the manors of Penryn Burgh and Penryn Forryn (extramural or external), and patrons of the first-named churches; they could act freely, being subject only to the ratification of the Dean and Chapter of Exeter.

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\* Hals (Gluvias) expressly says "Those churches were united and consolidated by the Bishops of Exeter, the patrons, and endowers thereof," without citing any authority. Hals spells the church incorrectly, "Gluviano;" from the Taxation of 1294 of Pope Nicholas IV., corr. "Ecclesia Sancti Glyviaci" in decanatu de Penren.

The Church of Budock appears, unaccountably, as a separate 'medietas' (moiety), or 'vicaria,' and not as a rectory, before it was united with Gluvias by Bp. Bronescombe, and its great tithes appropriated to Glasney Gollege,—from the following extract from the Patent Rolls.

"S. Budock: John\* &c. Know ye that we . . . . with the assent of John de Plesseto, parson of the Medietas of the Church of St. Budock of Triliver, have granted . . . to John †Wake, clerk, the perpetual vicarage of the same medietas (moiety) . . . which refers (belongs) to our presentation by reason of the Bishopric of Exeter being vacant.‡ 28 May, 1208." (Appendix IV. of Preb. Randolph's Episcopal Registers, p 495, 1889).

This separation of the tithes is mentioned in the Appropriation-deed of the Churches of S. Budock and S. Feock (1267).

"Assigning thereto for its support all the fruits and revenues of the said Church of S. Budock—divided into portions from of old (*divisæ in porciones ab antiquo*), and of the church (*sc. of Penren*) so united and annexed."

There is an inconsistency in the intentions of the founder. In the foundation-deed, the above quoted *Ordinatio Canonorum de Glasneye* (1267), he ordered three *resident* vicars in the three parishes of Budock, Gluvias, and Feock. "That in each of the three churches one be nominated Perpetual Vicar, to be canonically instituted by us or our successors; who shall have the cure of the people, and each one in his vicarage shall make continual residence in person."

\* John, King of England, 1199-1216.

† J. Wake was an insolvent pluralist, who owed £40 to the King, and, as he failed to pay, the King fell back on the Bishop, who sequestrated his livings. These were Helston and S. Budock, where he was vicar, S. Mewan, Warleggan, and S. Cleer, all in Cornwall, and Arlington and Bigbury in Devonshire. (Preb. Randolph, from the Queen's Remembrancers of the Exchequer Series.)

This eminent archæologist has lately supplied in his two volumes of *Episcopal Registers* ample materials to all students of the early History of the Diocese of Exeter. It is hoped he will compete the issue of these Registers, with the same insight and method.

‡ Vacant from 1206 to 1214, a most confused period of English Ecclesiastical History.

## PROBUS CHURCH AND TOWER.

BY H. MICHELL WHITLEY, F.G.S., Hon. Sec.

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In one of the most fertile districts of Cornwall, rich in grazing and corn lands, stands Probus Church Town, which justly lays claim to the fairest Church Tower in our western county.

Grey and lichen-covered, crowned with its clustering pinnacles, a superb example of late perpendicular work, it overlooks the village, and, a tower set on a hill, commands the country for miles around.

Probus Tower is the landmark and pride of the inhabitants of the district in the centre of which it stands.

The Church, itself, is built in plain perpendicular style, and consists of chancel, nave, north and south aisles, western tower, and porches. The original altar-slab, with its five crosses, is inserted in the wooden framework of "God's board."

The piscina of Catacleuse stone is of Norman workmanship; it was found in the tower, with the shaft detached, during the restoration. In the north wall of the chancel is a small recess which was uncovered at the same time. Two skulls, which were supposed to be those of the Saints Probus and Grace, to whom the Church is said to be dedicated, were found in it. They were re-interred in a small vault beneath the altar.

The base of the roodscreen bears on its front, in gold letters, the quaint legend, "Jesus, hear us, thy people, and send us Grace and Good for ever;" a supposed punning reference to the patron saints.

In the south or Golden Aisle is a brass, commemorating John Wolvedun and his wife, dated 1514; the former being the last male heir of that ancient family, on whose decease the possessions were carried by the heiress to the Tregians of St. Ewe, who, thereupon, settled at Golden. A piscina still remains in this aisle. In the north aisle is the staircase to the roodloft.



THE PHOTO SPASQUE & OF LONDON.

PROBUS TOWER



A few of the old bench-ends are utilised in the chancel stalls, and some of the emblems of the Passion are carved thereon; amongst them the thirty pieces of silver, and the scourge; whilst on one of the bench-ends in the nave the inscription, "Ave Maria," and the cross, surrounded by emblems of the crucifixion, are cut.

The tower-arch is late perpendicular, and it was intended to vault the first stage in stone—a plan which was never carried into effect. King Charles's letter of thanks is placed here.

The tower itself, the crown and glory of the church, stands at the western end of the nave. It is of three stages, wholly built of "moorstone," and almost entirely covered with lichens, which give it a soft greenish-grey colour, most pleasing to the eye. At each angle there are double buttresses, diminishing as they ascend with foliated pinnacles at each stage.

The ornamentation increases in richness towards the summit, where the tower is crowned with a battlemented parapet, and with clustered foliated pinnacles of good proportion.

The decoration is well designed, consisting of figures, animals, foliage, fleur-de-lis, and other subjects; whilst three niches for images with canopies, are placed in the north and south walls of the ground stage.\*

There are various traditions extant as to the building of the church and tower. One old legend affirms that Probus Tower was intended for Truro church; but, as it was being brought down in a waggon drawn by six horses, the evil one upset the team, and planted the tower where it now stands in Probus village. Another story runs that St. Probus built the church; but failing funds he petitioned Grace, a wealthy lady, to aid him, and she built the beautiful tower at her own cost—and now across the base of the roodscreen appears the curious inscription before mentioned.

When the church was consecrated Probus took to himself all the credit, until a supernatural voice was heard exclaiming in loud tones—

" Saint Probus and Grace,  
Not the first but the laest."

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\* The illustration of the tower is reproduced, by permission, from a photograph taken by Messrs. Valentine of Dundee.

Carew, our Cornish Historian, states that "the high and faire church tower of hewed moorstone was builded within compasse of our remembrance by the well-disposed inhabitants."

Now as Carew was born in 1555, some writers have drawn the deduction that the tower was built in the reign of Elizabeth when Gothic architecture had well nigh perished out of the land; and it has been pretty generally assumed that the perpendicular style existed in Cornwall nearly a century later than in the other counties of England.

This being so, anything that throws light on the building of the tower is of interest; and I have lately found in the Star Chamber proceedings at the Public Record Office\* a bill of complaint relating to the building of the tower, and the troubles the parishioners incurred in their pious labours to erect the same. The bill, itself, is undated, but was presented in Henry VIIIth's reign, and, probably, towards the latter end. It sets forth in the name of the churchwardens, John Pascoe and Stephen Gyon; how that the Church and Steeple of Saint Probus was in a marvellous great ruin and decay, insomuch that God's divine service could not conveniently be done there, to the great trouble and unquietness of the parishioners; so they, of their good minds and devotions, resolved to put their helping hands towards the edifying of the same.

Now, there was a quarry at Ewelmartin, in the parish, belonging to John and Jane Tregian, Nicholas and Catherine Carminowe—these two ladies being sisters, the elder, Jane, being the heiress as before mentioned—and Robert Coker, which they held in common; the receipts being applied to the maintenance of certain lights in Probus church.

Hitherto the church—which originally was built from this quarry—had been always repaired with stones from thence without let or hindrance; and the owners had licensed the parishioners to dig stone there, four of the most substantial and honest men in the parish having waited on them and obtained their consent. Whereupon they set to work, and, for the space of three years, dug and wrought stone peacefully in the quarry, when, suddenly, one of the joint tenants—Nicholas Carminowe

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\* Star Chamber Proceedings, P.R.O., Bundle, 17, Number, 209.

—without, as they allege, any ground or cause, and contrary to the will of the other owners, but only urged by his froward and cruel mind, and from the pure malice he bears the parishioners, has forbidden them to dig stone in the quarry to repair the church, to their great heaviness, trouble, hindrance, and loss, which they estimated at £100.

Further, the churchwardens complain that Carminowe had brought an action for trespass against 22 honest men of the parish, which was decided against him. Immediately, on which, he caused writs to be issued against them for riot, of which they plead they are not guilty; and some, though honest, are so poor that they are not able to pay for the cost of coming to London to answer the same, unless they should beg by the way.

Still, further, in order to hinder the building of the tower, he has had trenches dug in the highway leading to another quarry at Freston, four miles distant, in which he has no interest.

Also he and his wife boast that they will make the Probus men beg their bread before they shall build their tower; and are determined to destroy the church; and to drive the inhabitants of the parish to extreme poverty and desolation; contrary—as the churchwardens sadly remark—to their profession as christian man and christian woman, and, therefore, bound to maintain the church, instead of by their malicious and crafty acts driving many of the inhabitants from the parish, to its great loss and decay.

But worse still follows. Not content with forbidding stone to be dug for the Church, they set their servants, armed in manner of war, with swords, bucklers, bills, and short dags, to waylay, beat, and slay the parishioners, so that they are afraid to bring stones in turn as agreed, until the masons have to stop building for lack of materials, to the great hindrance of the work.

Further outrages to the same effect are detailed, and rank malicious words, such as John Etye used when he threatened that some of them should be slain before they finished the work.

For this cause, at last, the parishioners appeal to the Court of Star Chamber both for protection in their lawful building, and for the punishment of their oppressors.



No clue is given to the reason why the Carminowes threw such obstacles in the way of the erection of the church and tower. But we have seen that Jane Wolvedun, the eldest sister and heiress, married John Tregian, and brought the bulk of the estates to him, and, consequently, they were extremely wealthy, re-building Golden, and living there, as the old chroniclers say, in great magnificence; whilst the second sister, Katherine, married Nicholas Carminowe of Trenoweth. We may conjecture that, probably, the Tregians, wealthy as they were, gave largely to the building of the tower—indeed the legend that a wealthy lady built the tower may refer to Jane Tregian—which excited the envy and jealousy of the younger sister, who incited her husband to throw every obstacle in the way of the completion of the work. However, this may be, as the orders of the Court are not extant, we can only conjecture, from the completion of the noble structure, that, eventually, the churchwardens succeeded, and were enabled to finish in peace the work they had begun.

The foregoing document confirms Carew's statement, that the tower was built by the parishioners themselves, and not by Grace—who may, however, have built the previous steeple, referred to as being ruinous. And as John Tregian removed to Golden in 1514, on the death of his father-in-law, the tower must have been erected between that date and 1547: which is the usually accepted close of the Perpendicular period, and there is no reason, therefore, to assume, from this example, that that style continued to be employed in Cornwall much later than in the other portions of England.

I would, in conclusion, also suggest that great caution should be observed in accepting the Dedication of the Church to Saint Probus and Grace, who were supposed to be married. In this document the church is described as that of Saint Probus, as in former ones, and, I am of opinion, that this is the correct dedication of the church.

## THE PROBLEM OF THE LIZARD ROCKS.

By EDWARD A. WÜNSCH, F.G.S.

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At our last Spring meeting I read a short paper on the above subject, and the present communication is intended to form the second part of it.

The statements in my first paper were almost exclusively of a negative character, consisting of queries and an enumeration of points, all more or less open to question, and I still maintain that no one has as yet succeeded in unravelling the true character of the Lizard rocks.

And this, not for want of observers, but for want of a theory to include and explain all the facts involved in the investigation of this complicated geological district.

An excellent summary of the opinions of leading geologists has been given in a paper read in March last, to the members of the Plymouth Institution, by my friend, Mr. Howard Fox, and with his kind permission I quote from it the following data:—

Professor Sedgwick, seventy years ago, as the result of a careful survey of the district, wrote: "We were led to conclude that the great plateau of the Lizard was not composed of stratified rocks." This opinion, being entirely negative, need not be farther discussed.

Sir Henry de la Beche, fifty years ago, summed up as follows:—

"As a whole, however, the hornblende and slate rock *seems* to have formed a basin into which the serpentine and diallage rock *seems* to have been poured in a state of fusion." With all due respect to this eminent author and splendid surveyor, this theoretical opinion may fairly be relegated to the dark ages of geology, as may also all other opinions and theories which glibly account for everything by a "state of igneous fusion."

Before proceeding with observers in the order in which Mr. Fox places them, I may be allowed to intercalate the name of the Rev. E. Budge, vicar of Manaccan, whose patient investigations added to his advantages as a local resident carry great weight with them.

Commenting upon the rocks of the eastern district, he says : " There are the most evident proofs that the hornblende and the serpentine pass into each other by a transmutation so subtle as to defy all attempt at separation."

We next come to Professor Bonney, whose valuable and painstaking researches in 1876 and 1881, already referred to in my last paper, form a central point in the history of geological research in the district. They are valuable and instructive beyond all previous investigations, from the fact that, for the first time, that most powerful means of modern research, the microscope, wielded by a master-hand, is brought to bear upon the geological investigation of the district.

Professor Bonney's papers are a perfect storehouse of facts, and though at present unconnected by any tenable theory, and, therefore, perplexing to the general student, may prove of the utmost value, and fall into their proper places, in the hands of some future elucidator.

Professor Bonney sums up his researches in no less than ten axiomatic conclusions, some contradictory of each other, and all vitiated by his assumption of the necessarily igneous irruption of the serpentine, and of the necessarily archæan age of the whole group of the Lizard rocks.

Before entering into a fuller discussion on these points, I shall take up Mr. Fox's order of the Lizard investigators, and name the two other recent investigators whose scientific acquirements and lucid exposition claim consideration, I mean Messrs. Collins and Teall.

Mr. Collins, in 1884, refers to distinct evidence of stratification in the serpentine, and to serpentinous change of stratified materials in situ—a conclusion supported by chemical analysis of hand specimens ; and he adds his belief that " of an originally differing series of conformably bedded rocks some have been

converted into that peculiar variety of hornblendic schist which characterises the locality, others have been converted into true serpentine, and others, again, into a rock of an intermediate character."

Finally, Mr. Teall, author of *British Petrography*, bringing the result of his extensive microscopical investigations to bear upon the subject, contends that the foliated structure of the allied gabbro rocks is a secondary structure due to earth movements acting upon the solid rock, and is the result of pressure or regional metamorphism.

In thus going over and attempting to classify these various opinions, I could not but arrive at the conclusion that there is an evolution in geological as in all other opinions.

Geology is only just now emerging from its infancy. When, following the venerable example of Cuvier and Humboldt, every writer on geology felt bound to give his own account of the creation, starting with the assumption of vast subterranean masses of molten matter, and having thus secured his "*Deus ex machina*," he could draw upon it unreservedly for the explanation of all volcanic phenomena, and of many others not even remotely volcanic.

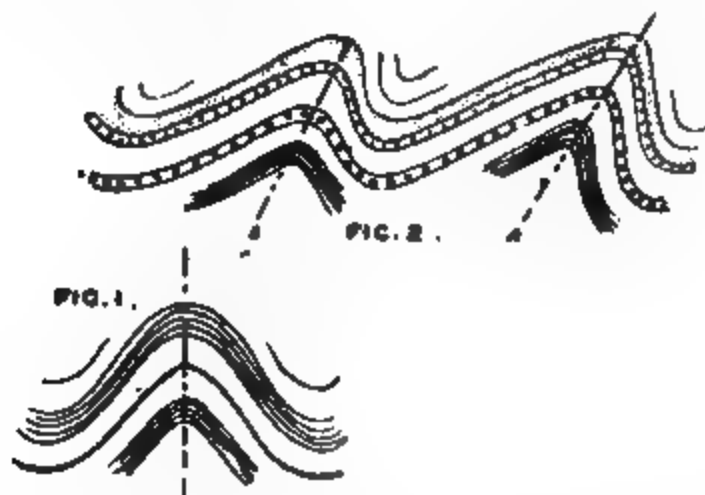
And thus the suspicion steals upon us that those geological, equally with theological opinions, appear to be hereditary. For, in spite of the philosophical researches of Mallet on earthquakes, and the still more modern and far-reaching researches of continental and English geologists on earth movements in mountain formation, we have a distinct survival of these supernatural igneous theories amongst living geologists of the older school, who are unwilling to ascribe to simply dynamic causes the infinite compression, displacements, and metamorphism of rock masses; we cannot, consequently, expect at their hands a theory which will explain all the facts open to observation.

In my first paper I referred to the impending International Congress at London, and I now propose, in conclusion, to give a condensed summary of the information there gathered, which, I hope, may throw a fresh light upon the question of the Lizard rocks.

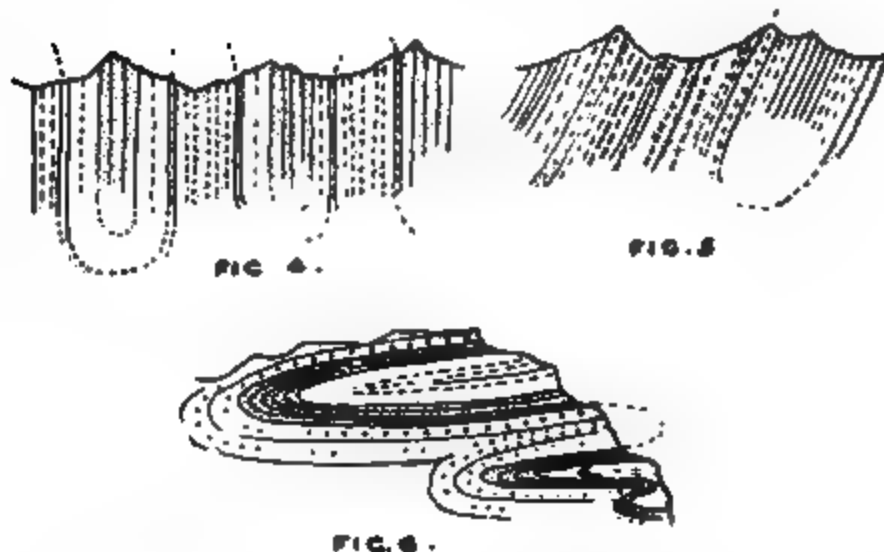
By the kind permission of my friend, Dr. Albert Heim, of Zurich, and of his collaborateur, Professor E. de Margerie, of Paris, I am enabled to re-produce some illustrations from their standard work, "*Les dislocations de l'écorce terrestre*," Zurich, 1888. And the following is a condensed statement of the theories propounded by these two eminent geologists :—

The earth movements as evidenced by anticlinal and synclinal foldings, by upheavals and downthrows, fractures and shearings, occurring repeatedly and in varying directions, give rise to such an intermingling and complexity of the rock masses in mountain districts as to make it almost impossible for the most experienced geologist to unravel them, unless he could study the same strata in other localities in a less disturbed state, opportunities for which, fortunately, occur in some parts of the Swiss and Italian Alps; and thus supplied with an index to the component parts in their original order of superposition, the practical geologist can refer the compressed and transposed fragments to their original strata.

For this purpose the closest attention to the progressive changes in the shifting position and intermingling of the strata is required, and the following diagrams, beginning with the simplest movements, will illustrate the subject more concisely than any lengthened verbal description.



Thus we have in Fig. 1 the initial anticlinal axis at a right angle to the planes of stratification. In Fig. 2 the axis inclines at two varying angles, and in Fig. 3 the axis is laid so low as to invert the stratification, making the older layer appear to overlie the younger layer.



In Fig. 4 we have the same anticlinal and synclinal folds after exposure to denudation, showing in mountain peaks; in Fig. 5 the axis is considerably inclined; and in Fig. 6 is again laid so low as to bring the inverted layer once more into a horizontal position in the escarpment of a mountain side.

This may be called the A B C of mountain structure, and is, of course, familiar to every practical geologist, nor is it difficult to follow, even by the uninitiated, but it must be added that the diagrams show the effects of the movement in one direction only, and once only, whereas the movement may be repeated indefinitely and from varying directions, and thus lead to the most perplexing complications.



The pressure may further be so violent or prolonged as to double up an originally horizontal layer upon itself, producing a bunch as in Fig. 7; and further pressure will force into the same position the second underlying layer, and actually cut off,

in the shape of an elongated pocket, a portion of the first layer, as shown in Fig. 8.

FIG. 9

The final stage of such almost incredible compression and distortion is shown in the two last figures. Supposing the dark inner layer to be serpentine, and the outer lighter layer to be banded schist or granulitic rock, we then have an angular fragment of the solid rock, as in Fig. 9, *entangled in the eruptive serpentine*, as Professor Bonney would describe it; and, finally, we have the identical appearance as described by the same author in his paper on the Lizard rocks—Q.J.G.S., vol. xxxiii., p. 894—of “a tongue of serpentine about 1½ foot wide exposed in the schist.”

Fig. 10 represents such an elongated or squeezed out “tongue,” or, preferably, “pocket;” and in the absence of demonstration of the successive stages, by which it came to attain its present position and shape, it might well be called an igneous rock injected into the banded schist.

There are innumerable instances of such serpentine pockets all through the Lizard rocks, from the size of a walnut, or the weight of a few ounces to hundreds of tons in weight.

I have advanced no new theory, but I submit with all due deference to Professor Bonney and other zealous explorers of the Lizard district, that the dynamic theory, as I have now endeavoured to apply it to these rocks, is the only theory hitherto propounded that will meet all the facts of the case.

There is, of course, a number of collateral questions which I have refrained from touching upon, in order not to complicate my main argument.

I have not discussed the origin of the serpentine, but have simply taken it as an existing rock interstratified with other rocks and acted upon by dynamic forces. In thus venturing to differ from so many eminent investigators, I cannot do better, in conclusion, than quote the sentiments so happily expressed by Professor Bonney in the most recent discussion of all upon the Lizard question, which has appeared while my paper was going through the press.\* Professor Bonney said that "on so difficult a subject all well considered hypotheses must tend to the discovery of truth."

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\* Notes on the hornblende schists and banded crystalline rocks of the Lizard by Major General C. A. McMahon, F.G.S., and discussion thereon, Q.J.G.S., vol. xlv., p. 544.



## NOTES AND QUERIES.

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*The Editor will be glad to receive short Notes on Discoveries, and occurrences of interest, relating to the Antiquities, Geology, and Natural History, &c., of the County, for insertion in this portion of the Journal.*

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No. 1.

### *Re-erection of the Nine-Stones.*

On April 8th, Mr. F. R. Rodd, accompanied by Mrs. Rodd, took some men to the old circle of this name, which lies about three quarters of a mile S.E. of Fox Tor, and the diameter of which coincides with the boundary-line between Altarnon and North Hill. The stones (which happen to be nine in number), were all fallen except two: this was not to be wondered at considering none of them are more than 6 or 7 feet high, and they are not large of their kind; besides, the cattle constantly trampling round and rubbing against them hasten the effects of winds and rains. Two stones of the circle were missing; but the one in the centre, though fallen, was in place; for which a fresh pit was excavated, without, however, bringing to light any indications of there having been an interment there.

This is but a small circle, and so not particularly valuable as a relic of antiquity; yet the restoration of it none the less serves a good purpose, as tending to shew the moor-men, especially those on the look-out for gate-posts, that labour (*i.e.* money) is expended on their preservation: and therefore Mr. Rodd deserves the thanks of the Royal Institution of Cornwall. For this is the only practical way of carrying out the spirit of Sir John Lubbock's Act, on these moors, where people are so scarce, and knowledge travels so slowly, that prehistoric remains may be destroyed and removed, without the discovery of such destruction, until too late to prevent it. This is illustrated by the

## No. 2.

*Recent Damage to the Stipple Stones.*

This is a large circle situated on the S. slope of Hawk's Tor, a hill which lies N. of Temple, and rises from the Hawk's Tor Clay Works, on the Bodmin road, a short mile on the Bodmin side of the Four-hole Cross. It was once a circle which did credit to those "old men" who loved megalithic erections. It was a perfect circle, consisting of huge upright granite blocks, with a fine central member; and close to the outside of the circle on the N. and W. sides are a fosse and rampart. Many of these stones had fallen; and from the position they occupied it would seem that they had been *pressed down* by stress of storms from the prevailing quarter, rather than had been undermined by successive trampings of cattle. And if it had been known that the circle was likely to be tampered with, perhaps the lord would have been good enough to refuse his tenant permission to meddle with it. But a "new take" being in progress, close by, and a hedge needed, some of the stones were split up, and taken for the purpose, not long ago; even the central member being divided—and now but few stones of the circle remain, to indicate its former outline. Such spoliation should not be permitted; but in most cases it is difficult to prevent it, *in time*.

About a stone's-throw to the E. of the circle is an opened kist-vean, but with walling, and covering-slab still remaining.

About 200 yards S. of the circle is a curious little eminence, with a narrow tunnel running through it, of which I cannot conceive the use or intention. The tunnel is made by dry-walling, covered by flat covering-stones; it is about 16 feet long, open at both ends, and about large and high enough to admit a hare or cat to pass through; but the walling appears to extend much below the ground-level. Viewed at a short distance the eminence looks like a small flattened barrow, with this narrow passage running right through; there is every indication of its being ancient.

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No. 3.*Hut Circles below Hawk's Tor.*

Large groups of these will be found on the slopes on either side of the Bodmin-road, when the bridge below Hawk's Tor

works is crossed, and the face turned towards the east. They are very easy to visit, being so near the road; and are in sufficiently good repair to well repay a leisured inspection.

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No. 4.

*Opening of a Cairn on Ridge Hill.*

On May 22nd, 1889, I received the following from Mr. Rodd, of Trebartha Hall:—"We have been raising a wall round the old plantation below Ridge Hill lately, and have driven an adit through the cairn on the top, in order to get stone for the purpose. This morning I see that the men have arrived at a central rock, around which the cairn appears to have been built. The top of the cairn appears to have been disturbed at some former time, and to have been composed of a number (7 or 8) of irregularly shaped cells, or chambers, very roughly built: I cannot conceive for what purpose; we hope to go up there again with two carts and clear away stone to the centre of the ground-line: I should much like you to see what we have done." Accordingly on July 3rd, I accompanied Mr. Rodd and some friends, and found that a passage had been made from the circumference at the north side to the centre, and beyond the centre of the cairn, by removal of loose stones, and that the original ground-level of this portion of it was exposed to view. In the centre (or thereabouts) of the area on which the cairn had been constructed was a large slab of granite, about 5 feet long, 2 to 3 feet square, partially embedded, and apparently as laid there by nature. This block certainly seemed to have been the "nucleus" round which the cairn was formed, for it seemed to be the centre of some concentric circles of stones,—on edge,—which, at some little distance, circumscribed the block. The surface of the ground, and the faces of the loose stones all around in the "crater" of the cairn were so coloured and scarred with tar and fire from the bonfires, or beacon-fires of various generations, including the jubilee bonfire, and the molten tar had penetrated between the interstices of the stones, and permeated the soil to such an extent, that it was most difficult to determine whether the burnt earth immediately above the subsoil was due to this cause only, or was indicative of a funeral pyre. However, on excavating round the granite-slab previously divided into two parts for the more easy removal, it distinctly

appeared by the depth of such darkened earth, the absence of any tar, and the homogeneity of the soil, that the ashes of the primal interment had been laid against, but not under the N.W. side of the granite block. There was no paving, fragment of pottery, or anything whatever of interest, just here—and the earth was turned over down to the “country;” apparently there had never been any kist-vean under the cairn; but it is possible there may have been another interment without kist-vean elsewhere below the ground level, in other parts of the cairn, where the ground has not yet been excavated.

A. H. MALAN.

No. 5.

*Cornish Wine-Merchants and Tobacconists, 1633 to 1635.*

The following list is extracted from the “48th Report of the Deputy Keeper of the Public Records.”

LICENSES TO SELL WINE.

	<i>For sale in</i>	<i>Date.</i>
		1633.
Tobias and Margaret Langdon ..	Crasthole	Dec. 11th.
Wm. Diana and Katherine Marke	Padstow	„
Mary King .. .. .	St. Columb Major	„
John White .. .. .	Do.	„
		1634.
Katherine John and Richard Kestell	Fowey	May 17th,

LICENSES TO SELL TOBACCO.

		1634.
Richard Rowe .. .. .	Milbrook Maker.	March 1st.
Thos. Blake .. .. .	St. Columb Major	„ 21st.
James Hill .. .. .	Foy (Fowey)	„
Matthew Sharrack .. .. .	Liskeard	„
John Collins .. .. .	Tregony	„
Richard Collins .. .. .	Tregony	„

No. 6.

*Old Bell Customs in Cornwall.*

In the early part of the present century a quaint mode at calling the congregation to church, to service, was observed of Tregony.

The sexton went round to the houses of the principal inhabitants, opening the doors, and calling out " I'm going to ring the bell, Sir !"

After completing the circuit of the town, he tolled the bell in the tower of the Market Place for a few minutes, then proceeding to the parish church of Cuby at the head of the street and ringing the bell until the service began.

This custom may be connected with the former existence of St. James' Church in Tregony which stood in the moor below the Castle. The bell alluded to in the Market Tower is peculiar in being hung with a half-wheel, this being the only example of this old mode of hanging that I am acquainted with in the county.

At Truro in the last century, before St. Mary's steeple was built, the congregation was summoned to church by the sexton ringing a bell around the town, and the same practice was followed at Mevagissey much more recently.

#### No. 7.

##### *The Variable Star R. Leonis.*

This star has been under observation during the spring months of 1889 ; on March 8th, it was of the 8th magnitude ; on the 11th, of the 7th ; and it attained its maximum on March 27th, when it was 5·5 in magnitude ; its decrease was gradual and slower than its increase, it being 6·3 in magnitude on May 2nd.

The date of the maximum of this Variable as given in the " Companion to the Observatory " is March 23rd. In colour the star was orange-red in Frank's notation. My wife's description of it as " copper-colour " exactly describing it.

#### No. 8.

##### *The Planet Venus.*

This planet being favourably situated during the spring of 1889, has been constantly observed.

The blunting of the South Horn and the projection of the North were well seen on February 15th, and the terminator was at

the same date slightly indented, but the latter appearance was not again seen, although on April 7th the terminator appeared flattened in places.

The blunting of the south horn was barely perceptible on March 5th, but the projection of the north horn was still visible.

On March 22nd both cusps were equally sharp. Special attention was paid to any spots visible on the disc, but only on one night was anything seen. This was on Feb. 15th, when two spots were noticed, they were very faint and evanescent, like light dusky patches on the disc.

No bright spots were ever seen beyond the cusps. No bright border to the planet was noticed, but on April 5th the cusps seemed to extend beyond a semicircle.

The phosphorescence of the dark side was specially looked for, but was never perceived with all attention.

The foregoing observations were made with the Institution Refractor of  $3\frac{3}{4}$  inches aperture by Messrs. Cooke & Sons, of York.

H. MICHELL WHITLEY.

No. 9.

*Rainfall at Altarnun Vicarage.*

Height above mean sea level, 600 feet.

Height of gauge above ground, 1 foot.

Diameter of gauge (Casella) 5 inches.

Five years' average 1864-8—61·27 ins. Average of Rainy Days 222

Do. 1869-73—61·73 „ „ „ 211

Do. 1874-78—61·92 „ „ „ 218

Do. 1879-83—63·14 „ „ „ 210

Four years' average 1884-7—54·33 „ „ „ 195

Maximum Fall .. 1872—84·11 inches.

Minimum Fall .. 1887—41·11 „

Max. No. of Rainy Days 1886—258

Min. No. of Rainy Days 1887—152

No. 10.

*Discovery of a Roman Miliary Stone at Tintagel.*

The Rev. W. Iago, B.A., has recently discovered the oldest Inscribed Stone known in the county. It is a Roman Miliary Stone, and forms the lich-stone in the eastern grid of Tintagel Churchyard. The inscription reads (but without stops)

IMP. O. G.  
VAL.  
LIO. LIOIN.

“Imperatore Cæsare Galerio  
Valerio  
Liciniano Licinio.”

It dates from the early part of the fourth century, and is prior to the St. Hilary Stone, the only Roman Miliary Stone in Cornwall hitherto known, unless that stone be of the time of Constantine I, in which case the stones may be contemporaneous.

Mr. Iago has promised to contribute a paper on the subject to the next number of our Journal.













